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Supreme Court of the United States

OCTOBER TERM, 1961

No. [redacted] 160

LA MAUR, INC.,

Petitioner,

vs.

L. S. DONALDSON COMPANY and
G. BARR AND COMPANY,

Respondents.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

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Petitioner prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Eighth Circuit, entered in the above entitled case on February 19, 1962.

CITATIONS TO OPINIONS BELOW

The Opinion of the Court of Appeals for the Eighth Circuit is reported at 299 F.2d 412 (1962), and is printed in Appendix A hereto, *infra*, page 23. The Opinion of the District Court is reported at 190 F.Supp. 771 (1961), and is printed in Appendix D hereto, *infra*, page 48.

JURISDICTION

The judgment of the Court of Appeals was entered on February 19, 1962 (p. 45, *infra*). Rehearing was denied on March 19, 1962 (p. 47, *infra*). The jurisdiction of this Court is invoked under 28 U.S.C., Section 1254(1).

QUESTIONS PRESENTED

1. Did the Court of Appeals, by making a de novo appraisal of the evidence, and thereby arriving at findings of basic fact contrary to the findings of the District Court, misapprehend or grossly misapply the permissible standard of review under F.R.C.P. Rule 52(a), established by this Court in *Graver Tank & Mfg. Co. v. Linde Air Prod. Co.*, 336 U.S. 271, 274-275 (1949)?

2. Could the Court of Appeals overthrow the statutory presumption of the validity of a patent on the basis of an item of prior art which was considered by the District Court in upholding the patent, and which is merely repetitious of the prior art teachings expressly considered by the Patent Office?

3. Did the Court of Appeals err in holding, as a rule of law, that when a chemical combination of A, B and C is known, a new chemical combination of X, B and C is necessarily unpatentable, even if, as the District Court found on the basis of expert testimony, the substitution of X for A requires the exercise of inventive skill and produces new and unexpected results?

STATUTES INVOLVED

The pertinent portions of the rule and statutes involved are as follows:

1. Rule 52(a) of the Federal Rules of Civil Procedure:

"Effect. In all actions tried upon the facts without a jury or with an advisory jury, the court shall find the facts specially and state separately its conclusions of law thereon and direct the entry of the appropriate judgment; . . . Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses. . . . If an opinion or memorandum of decision is filed, it will be sufficient if the findings of fact and conclusions of law appear therein. . . ."

2. Section 282 of the Patent Act of July 19, 1952, 66 Stat. 792, 35 U.S.C. Sec. 282:

"A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it. . . ."

3. Section 103 of the Patent Act of July 19, 1952, 66 Stat. 792, 35 U.S.C. Sec. 103:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

STATEMENT OF THE CASE

Petitioner sued respondent L. S. Donaldson Company for patent infringement in the United States District Court in the District of Minnesota, invoking jurisdiction under 28 U.S.C. Sec. 1338 (R.[1] 2). The patent in suit is Spiegel Patent No. 2,871,161 (E.V. 16-17), issued January 27, 1959, covering an aerosol hair spray consisting essentially of a combination in solution of three ingredients, viz. (1) water-free alcohol, (2) Freon and (3) polyvinylpyrrolidone (PVP). Spiegel is petitioner's President; he assigned the patent to petitioner, which is a modest sized manufacturer of cosmetic products located in Minneapolis, Minnesota. Respondent L. S. Donaldson Company, a department store in Minneapolis, was charged with the sale of infringing hair sprays manufactured by respondent G. Barr and Company (Barr), a Chicago aerosol loader, supplying Colgate, Max Factor, Toni, and others (R. 129). Barr intervened and carried the defense. After a two week trial, which included testimony by three polymer chemists, three cosmetic chemists, and two chemically trained patent lawyers, the District Court filed a careful opinion finding that the patent was valid and infringed (190 F.Supp. 771; *infra*, p. 48). Judgment was entered to that effect (R. 701). On appeal by Barr and L. S. Donaldson Company, the Court of Appeals for the Eighth Circuit reversed, holding that the patent was invalid for lack of invention, and not reaching the issue of infringement (299 F.2d 412, *infra*, p. 23).

In the District Court, petitioner presented extensive evidence to show that its patent was valid and infringed. The

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[1] The record as printed for the use of the court below, and as filed for consideration by this Court, consists of four separate volumes, identified and referred to as follows: Volume I, Pleadings and Transcript (R. .....); Volume II, Exhibits (E.V. .....); Supplementary Record of La Maur, Inc. (S.R. .....); and Petition for Rehearing Record Supplement (P.R.R. .....).

defendants contended (1) that the claims of the Spiegel patent should be so narrowly construed as to prevent a finding of infringement, and (2) that the claims were invalid for indefiniteness if construed broadly enough to cover Barr's hair sprays. Although invention was not technically conceded at the trial, the defendants offered no testimony to contradict petitioner's showing on the question of obviousness.

The District Court made findings on the basic facts pertinent to all issues, going into somewhat greater detail in covering the principal issues of infringement and definiteness, than in covering the much less disputed issue of invention. In arriving at its ultimate finding that the Spiegel hair spray "would not have been obvious to a person having ordinary skill in the art" (190 F.Supp. at 786; *infra*, p. 73), the District Court made basic findings that the pertinent prior art was carefully considered by the Patent Office (190 F.Supp. at 780; *infra*, p. 62), that the prior art did not suggest the Spiegel invention (190 F.Supp. at 781; *infra*, p. 63), that others skilled in the art had been unable to discover the Spiegel combination (190 F.Supp. at 781; *infra*, pp. 63-64), and that Spiegel's hair spray met with marked commercial success and was imitated by most of the cosmetic industry (190 F.Supp. at 781-782; *infra*, pp. 64-65). The Court of Appeals decided that invention was the principal issue in the case, and held that the patent was anticipated by the shellac aerosol hair sprays which were on the market prior to the Spiegel invention.

A chronology of pertinent events appears in the District Court opinion at 190 F.Supp. 772-773 (*infra*, pp. 49-51), and also in the Court of Appeals opinion at 299 F.2d 414-416 (*infra*, pp. 25-28). Briefly, the chronology is as follows: Spiegel made his invention in July, 1951 (R. 423, 425). Petitioner began marketing the new hair spray in March,

1952 (R. 439-440). Spiegel's patent application was filed four months later, but the patent did not issue until January 27, 1959, because the Spiegel application was placed in interference with an application owned by General Aniline & Film Corp. (GAF). (R. 364-366). The GAF application was filed in March, 1953 by Martinelli, a GAF chemist (R. 366, 647). GAF is a large producer of chemicals and photographic supplies; it was and is the sole U.S. source for PVP (R. 685). For several months during 1948 Martinelli, working in a large GAF chemical research laboratory, had tried unsuccessfully to develop a PVP hair spray (R. 644). The best that GAF could do was a formulation of PVP in a water solution, and this proved to be of no value (R. 644). Although Martinelli knew that PVP was soluble in alcohol, and knew of Freon aerosol sprays, GAF never tried applying PVP to the hair from a water-free alcohol solution, and never tried to put PVP in a Freon aerosol (R. 644, 648). However, after Spiegel took these two steps and produced his "revolutionary" (R. 78) advance in the hair spray field, and after he disclosed his invention to GAF in confidence early in 1952 (R. 437, 660), GAF attempted to head off the issuance of the Spiegel patent by causing Martinelli to file a patent application on the same subject matter, so as to provoke an interference (R. 647). When the interference was declared, GAF took advantage of a Patent Office procedure allowing it to move to dissolve the interference on the ground that the invention was not patentable to anyone (R. 366-367). In support of its motion, GAF cited 21 prior art references, in addition to the 16 references already cited by the Patent Office (E.Y. 103-104). The issue of patentability was briefed extensively by both GAF and petitioner, and oral argument was held before the Examiner, who then wrote a detailed opinion rejecting each of GAF's arguments and holding that the invention was patentable (R. 368; Appendix

E, *infra*, pp. 74-82). After losing on this motion, GAF defaulted on the issue of priority, thereby terminating the interference, so that the Spiegel patent could finally be issued (R. 372).

Petitioner offered licenses to the entire trade, but was able to secure only one major licensee, Breck (R. 448-449). Faced with widespread infringement, petitioner filed the present suit in August, 1959 (R. 704).

REASONS FOR GRANTING THE WRIT

1. The court below considered the case de novo, as if there had been neither a trial nor findings of fact by the District Court.

The court below wholly ignored the findings of basic fact by the District Court, made contrary basic "findings" of its own on the complex chemistry involved, and then relied on its own basic "findings" to reverse the District Court's ultimate finding of validity.

In *Graver Tank & Mfg. Co. v. Linde Air Prod. Co.*, 336 U.S. 271 (1949), this Court said at pages 274-275:

> "Rule 52(a) of the Federal Rules of Civil Procedure provides in part: 'Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses.' To no type of case is this last clause more appropriately applicable than to the one before us, where the evidence is largely the testimony of experts as to which a trial court may be enlightened by scientific demonstrations."

To the same effect see *Graver Tank & Mfg. Co. v. Linde Air Prod. Co.*, 339 U.S. 605, 610 (1950).

In the present case, the court below neither mentioned Rule 52(a) nor applied the Rule to the trial court's subsidiary findings of basic fact upon which the District Court's ultimate finding of invention was based, and paid no heed

to this Court's admonition of the particular applicability of Rule 52(a) to the complex scientific issues in patent infringement cases. Instead of considering whether or not the basic findings of the District Court are "clearly erroneous," the court below considered the case de novo, as if there had been no trial court findings, and arrived at directly contrary and manifestly incorrect "findings" of its own.

The fundamental difference between the District Court findings and the new "findings" by the court below relates to the prior art shellac aerosol hair sprays. There are two essential points of difference:

(a) The District Court found as a basic fact that shellac has no similarity to PVP, whereas the court below based its decision on a "finding" that shellac and PVP are similar.

(b) The District Court found as a basic fact that the prior art did not suggest the substitution of PVP for shellac, whereas the court below based its decision on a "finding" that Janistyn (the principal reference cited by the Patent Office) did suggest the substitution of PVP for shellac.

On both points the evidence supports and indeed compels the findings by the District Court; there is no evidence at all to support the contrary "findings" of the court below.

The pertinent basic findings of the District Court are set forth at 190 F.Supp. 772, 781 (*infra*, pp. 49, 63), as follows:

> "Aerosol hair sprays had been manufactured and were in use for some time prior to Spiegel's claimed invention, but they were made with *shellac-type materials which are not polymers and have no chemical similarity to PVP.* (Emphasis supplied.)
>
> • • • • •
>
> "In essence, Spiegel's invention was of the compatibility of Freon, alcohol and PVP, and of the application of PVP to the hair from a substantially water-free alcohol

> solution. The compatibility of these substances and their application from a water-free alcohol solution was a new combination and use of substances which, although individually known and appreciated, had never before been combined for use in this fashion. The claimed references do not show otherwise."

In support of these findings, Dr. Mark, the world's foremost authority on polymer chemistry (R. 623), gave the following uncontradicted testimony on cross examination:

> "Q. With that information available with respect to the packaging of shellac, would you say it would have been obvious to somebody skilled in the art that PVP would be compatible with Freon and absolute[2] alcohol?
>
> "A. I still would not think that this is obvious at all, because shellac and PVP are so radically different from each other in their structure and their molecular weight that one could not possibly make such a statement that it is obvious at all. There was no indication from everything which was known on the solubility of shellac or Elastolac[3] that a substance like PVP would behave equally, or even similarly" (R. 321).

The court below based its decision on a directly contrary view of the basic facts. Without mentioning the basic findings of the trial court, and without considering whether or not there is a *chemical* similarity between shellac and PVP, the court below deemed controlling the fact that there is a *semantic* similarity between shellac and PVP, because both are referred to, along with literally "thousands" (R. 493-494; P. R. R. 45) of other film forming materials, as "res-

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[2]Water-free alcohol is sometimes referred to as absolute alcohol or anhydrous alcohol.

[3]Elastolac is a trade name for a water soluble shellac derivative supplied in water solution (R. 598). Barr claimed, but was unable to prove, that it had made aerosol hair sprays consisting of Elastolac, alcohol, Freon and about 15% water (R. 599). Although the court below said that one Barr hair spray "consisted of Elastolac, anhydrous ethyl alcohol and Freon" (299 F.2d at 420; *infra*, p. 36), Barr conceded at the trial that the alleged Elastolac hair sprays were not anhydrous (R. 599).

ins." Solely on account of this *semantic* similarity, the court below based its reasoning on the underlying assumption that the behavior of shellac is representative of the behavior of all resins. This is a chemical theory to which no chemist subscribed at the trial, and, indeed, to which no chemist could ever subscribe.

In considering the question of invention, the court below first noted that the prior art included "a hair spray in aerosol form in which *shellac was the resin* and anhydrous alcohol and Freon were employed." 299 F.2d 420 (*infra*, p. 36). From that statement, the court below proceeded to make the following basic "finding" at 299 F.2d 423 (*infra*, p. 40):

> "It had been common practice to use alcohol as a solvent to render *resins* compatible with Freon which were otherwise incompatible with Freon."

Although this finding is stated as a "common practice" applicable to *resins* generally, it is undisputed that the only resins shown by the prior art to be compatible with water-free alcohol and Freon were shellac and gum benzoin (which is a natural resin similar to shellac) (R. 371; E. V. 244). Hence the general "finding" about "common practice" is actually nothing more than a reflection of the unfounded theory of the court below, contrary to the record and the trial court findings, that all resins are like shellac.

Having thus supposedly established a general interchangeability among resins, the court below formulated a final basic "finding" on the question of invention, as follows:

> "It would seem upon final analysis that what the plaintiff did was to substitute one type of resin ingredient for another and that such an alternative had been earlier taught by Janistyn." 299 F.2d 423 (*infra*, p. 40)

This "finding" plainly refers to the substitution of PVP for shellac. The evidence, however, is uncontradicted that in

stead of being suggested by Janistyn, the substitution of PVP for shellac was entirely original with Spiegel and was contraindicated by the applicable scientific theory. Janistyn listed 30 substances, including PVP, which are useful in water solution as hair fixatives (R. 316-317). Shellac is not water soluble, and was not on Janistyn's list (R. 78, 346-347; E. V. 167). Nothing in the prior art suggests that PVP either should or could be substituted for shellac. Dr. Mark's testimony is undisputed that, in view of the cohesive energy density theory, which is still the best available scientific theory for predicting solubility, the compatibility in solution of PVP, water-free alcohol and Freon is "surprising" (R. 222-228, 352).

Thus, the crucial "findings" of the court below are not based on anything in the record, and surely cannot amount to a *sub silentio* determination that the contrary findings by the trial court are clearly erroneous. Instead of reviewing the basic findings of the trial court in accordance with Rule 52(a), the court below has simply enforced its own peculiar and unsupportable chemical theory that the behavior of shellac enables one to predict the behavior of the entire group of materials known as resins. Hence this case is a classic illustration of the need for adherence to the principle of review established in *Graver Tank & Mfg. Co. v. Linde Air Prod. Co.*, 336 U.S. 271, 274-275 (1949).

In addition to making its own basic "findings" of resin technology, contrary to the findings of the trial court, the court below wholly ignored other key findings of the trial court which support the validity of the Spiegel patent. Particularly important are the following basic facts as found by the trial court at 190 F.Supp. 781 (*infra*, p. 63):

> "Barr's chemists did extensive research in the field of aerosol hair spray for several years but failed to discover the Spiegel composition. Even after having some

> of the composition in hand, neither Barr's chemists nor those of the Cafalin Corporation of America and the American Cyanamid Company could discover that resin LM [a code name used by petitioner] was PVP. Martinelli, a research worker for GAF, did research work for many months and did not come up with Spiegel's solution."

Although the unsuccessful efforts of others skilled in the art have long been recognized as a vital factor in determining patentability, *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 381 (1909), the court below did not even mention this subject or the pertinent findings by the District Court.

Since the court below has completely disregarded the basic findings of the District Court, and has based its decision on contrary "findings" of its own, there has been such a departure from the accepted and usual course of judicial proceedings, and the applicable standard of review has been so misapplied or misapprehended, as to call for an exercise of this Court's power of supervision. Cf. *N.L.R.B. v. Walton Mfg. Co.*, 30 L.W. 4279 (Nos. 77 and 94, October Term 1961).

2. The ruling of the court below denying the Spiegel patent the benefit of the statutory presumption of validity ignores a basic finding of the trial court, and is in conflict with principles established by decisions of this Court and other Courts of Appeals.

As a basis for its ruling that the statutory presumption of validity under 35 U.S.C. Sec. 282 is weakened in the case of the Spiegel patent, the court below relied exclusively on the following "finding" at 299 F.2d 421 (*infra*, pp. 36-37):

> "It does not appear that it was made known to the Patent Office that prior to the plaintiff's entrance into the field a composition containing the ingredients of shellac resin, anhydrous alcohol and Freon was being manufactured and sold to retailers and the general public."

In making this "finding", as in devising its own "find-

ings" about the technology of resins; the court below completely ignored a specific contrary finding of basic fact by the trial court at 190 F.Supp. 780 (*infra*, p. 62):

> "This presumption of validity is entitled to especially great weight where, as in this case, *the prior art relied upon by the claimed infringer was carefully considered by the Patent Office.*" (Emphasis supplied)

Since shellac aerosol hair sprays were acknowledged by the court below to be part of "the prior art relied upon by the claimed infringer," 299 F.2d 420 (*infra*, p. 36), it follows that the District Court found as a fact that shellac aerosol hair sprays were "carefully considered by the Patent Office." This finding of fact is amply supported by the clear showing in the record that the Patent Office was aware of Barr's commercial shellac aerosol hair spray, Liquinet. Thus, among the prior art references considered by the Patent Office was a July, 1949 magazine article (identified at E.V. 103 as "Anon.") describing the introduction on the market of Liquinet, the first commercial aerosol hair spray (P. R. R. 45). Furthermore, while the Spiegel application was under consideration in the Patent Office, the same Examiner was handling a subsequent application for a hair spray patent, filed by Barr's chief chemist. This application traced the history of non-aerosol and aerosol hair sprays, and said (P. R. R. 42):

> "With the advent of low pressure aerosols, it became possible to dispense a shellac type hair lacquer conveniently and easily. It was quite natural for the first aerosol hair sprays to contain shellac since this was the resin that had been used for many years."

Despite this and other evidence to the same effect, the court below did not even consider whether or not the basic finding of the District Court was supported by the evidence. Instead, the court below jumped to its own uninformed conclu-

sion that the Patent Office was not aware of shellac aerosol hair sprays, and on this ground alone swept aside the statutory presumption of validity.

Furthermore, the court below ignored two established principles of law, and concluded that the statutory presumption of validity is weakened under circumstances which other Courts of Appeals and this Court have held to strengthen the presumption. By so doing, the court below grossly exceeded the appropriate scope of judicial review of a Patent Office determination.

The first principle ignored by the court below is that the presumption of validity is reinforced where, as in this case, a patent is issued after a vigorous adversary contest on the question of invention, conducted as an incident to a Patent Office interference proceeding. *Hildreth v Mastoras*, 257 U.S. 27, 30, 32 (1924); *Hoeltke v. C. M. Kemp Mfg. Co.*, 80 F.2d 912, 919 (4th Cir. 1935); *Goodwin v. Borg-Warner Corp.*, 157 F.2d 267, 273 (6th Cir. 1946). In the *Hildreth* case, for example, this Court declared at 257 U.S. 32:

> "The presumption of priority and novelty which arises from the granting of a patent must have greatly increased weight when the claim of the inventor is subjected to such close and careful scrutiny under the stimulus of a heated contest."

Although the institution of some sort of a preissuance contest procedure has been urged as a means of weeding out invalid patents before they are granted, under present law not more than one percent of all the patents issued by the Patent Office are subjected to "the stimulus of a heated contest" before issuance (R. 369). Having weathered GAF's attack on patentability in the Patent Office, the Spiegel patent is in this select category. Nevertheless, the court below put aside the presumption of validity without even mentioning the doctrine of the *Hildreth* case, *supra*, or the detailed opin-

ion of the Examiner rejecting all of GAF's arguments (E.V. 111; Appendix E, *infra*, pp. 74-82).

The second principle ignored by the court below is that an infringer seeking to overcome the statutory presumption of validity must produce prior art which is *more pertinent* than the prior art considered by the Patent Office. For example, in *Power Curbers, Inc. v. E. D. Etnyre & Co.*, 298 F.2d 484, 493 (1962), the Court of Appeals for the Fourth Circuit said:

> "The fact that the defendants were unable to come up with any prior art *more pertinent* than the McIntyre patent [which was considered by the Patent Office] strengthens the presumption of the validity of the patent in suit." (Emphasis supplied)

To the same effect see *Goodwin v. Borg-Warner Corp.*, 157 F.2d 267, 272 (6th Cir. 1946), cert. den. 329 U.S. 799.

In the present case, however, the court below applied a directly conflicting rule, namely, that the presumption of validity is weakened merely by the presentation of additional prior art of some kind, even though the additional prior art is *not more pertinent* than the prior art considered by the Patent Office, but is merely repetitious. Thus, the court below first put aside the presumption of validity solely on the basis of its "finding" that the Patent Office was not aware of the prior art shellac aerosol hair sprays. Next the court below discerned in the shellac aerosol hair sprays a prior art teaching "that a resin ingredient dissolved in anhydrous alcohol was compatible with Freon." 299 F.2d 423 (*infra*, p. 40). This teaching, supposedly unknown to the Patent Office, then served as an essential link in the reasoning by which the court below invalidated the Spiegel patent.

Completely ignored by the court below is the undisputed fact that the Patent Office did cite and consider a prior art reference which contains precisely the same teaching, to-wit,

"that a resin ingredient dissolved in anhydrous alcohol was compatible with Freon." This reference is an Argentine patent disclosing an aerosol hair spray composed of alcohol, Freon, and gum benzoin, which is a natural resin similar to shellac (R. 371, 545-546; E.V. 238, 244). Hence, even if it be assumed that the Patent Office was not aware of shellac aerosol hair sprays, the only significance of these hair sprays as prior art would be to repeat the teaching of the Argentine patent. The shellac prior art is no more pertinent than the Argentine patent, since each merely teaches the compatibility of "a resin." There is nothing to suggest that PVP, a synthetic resin, could be expected to behave like shellac and gum benzoin, rather than like some other one or two of the myriad of known resins. For this reason, the expert chemists in the Patent Office determined that the compatibility of "a resin" with anhydrous alcohol and Freon would not suggest the like compatibility of PVP (E.V. 118; *infra*, pp. 79-80). In reaching a contrary conclusion, the court below gave no effect at all to this determination by the Patent Office, treated the statutory presumption of validity as "weakened" to the vanishing point, and proceeded as if the Patent Office had not known that "a resin ingredient dissolved in anhydrous alcohol was compatible with Freon." Thus, the court below plainly applied a rule in direct conflict with the *Power Curbers* case, *supra*, and similar cases.

As technology becomes ever more complex, there is less and less opportunity for courts to acquire a sufficient background fairly to appraise the prior art in an advanced field. Cf. dissenting opinion of Frankfurter, J., in *Marconi Wireless Teleg. Co. v. United States*, 320 U.S. at p. 60 (1942). For this reason, the correct application of the presumption of validity is of increasing importance in the decision of patent cases. Since the decision of the court below is in conflict with two established principles regarding the application

of the presumption, it is submitted that certiorari should be granted to resolve the conflict and determine the appropriate scope of judicial review of a Patent Office decision.

3. The court below employed a test of invention for "substitution" cases which is in conflict with the decisions of this Court and other Courts of Appeals.

The ultimate conclusion of the court below was that Spiegel was not entitled to a patent because all he did was "to substitute one type of resin ingredient for another" (299 F.2d 423; *infra*, p. 401), i.e. to use PVP with water-free alcohol and Freon instead of using shellac. As a governing rule of law, the court below then quoted from its prior decision in *Insulite Co. v. Reserve Supply Co.*, 60 F.2d 433, 437 (1932) the statement that

> "There is no invention in the mere substitution of one material for another."

Other circuits, however, as well as this Court, have held that there can be invention in the mere substitution of one material for another. *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486 (1877); *Remington Rand B. Service v. Acme Card System Co.*, 71 F.2d 628, 632 (4th Cir. 1934), cert. den. 293 U.S. 622; *National Latex Products Co. v. Sun Rubber Co.*, 274 F.2d 224, 240 (6th Cir. 1959), cert. den. 362 U.S. 989. Representative of these cases is the *Remington Rand B. Service* case, *supra*, where the Court stated the applicable principle as follows:

> "So it is said that Powell [the inventor] merely substituted one known material for another in the composition of his strips. There is, however, no rule of law that the substitution of a new material for an old is not patentable. The question is always whether the alteration *requires invention* or merely the exercise of mechanical skill and judgment." (Emphasis supplied)

The same principle is applied by the Court of Customs and Patent Appeals:

> "The question whether such a substitution is obvious must be determined on the basis of the circumstances of each case, especially the extent to which similarity and equivalence between the substances involved are recognized in the prior art." *Application of Doumani*, 281 F.2d 215, 217 (C.C.P.A. 1960).

Since these decisions are plainly in conflict with the view of the court below that a substitution of one material for another can never be patentable, it is submitted that certiorari should be granted to resolve this conflict and establish a uniform rule of law as to whether a "mere substitution" is patentable if it "requires invention."

4. Public policy considerations strongly favor the granting of the writ.

Still another reason for granting certiorari in the present case stems from the relatively weak economic position of petitioner in its industry, as compared with the entrenched position of petitioner's competitors. Since patent cases have come to be considered in the light of the economic policies embodied in the anti-trust laws, as well as in the light of purely scientific considerations, it would seem particularly appropriate that these economic policies also be considered in the determination of whether certiorari should be granted.

In an age of progress through giant research programs in giant laboratories, this is the rare case where an independent individual inventor,[4] operating a relatively small company, has come up with a technological breakthrough, which, after

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[4] According to "Review of the American Patent System," Report No. 1464 of the Senate Committee on the Judiciary, 84th Congress, 2nd Session (January 30, 1956), p. 2, "the individual inventor working in a field in which he has technical competence and directing his efforts toward the current problems in that field, performs a vital and important function. The patent system is designed to encourage this type of inventor."

imitation by many of the large companies in the field, accounted in 1959 (the year preceding the trial) for sales of 100,000,000 cans of PVP type hair sprays (R. 463). Despite its head start, petitioner enjoyed only 3% of this market, while the other 97% was controlled by such well known companies as Revlon, Breck and Rayette, in addition to respondent Barr's customers, Colgate, Toni and Max Factor (R. 461-462). Petitioner's share of the entire aerosol hair spray market was even smaller, since hair sprays not of the PVP type were sold by Helene Curtis and others, to the extent of approximately another 50,000,000 cans (R. 463).

The Spiegel patent is petitioner's great opportunity to compete on more equal terms with the giants of the cosmetic field. Accordingly, petitioner devoted its limited executive time and resources first to an extensive litigation with GAF in the Patent Office regarding the patentability of the Spiegel invention, and then to a protracted trial in the District Court, only to have the court below invalidate the patent on a de novo consideration of the facts. Unless certiorari is granted, so that the validity of the Spiegel patent can be authoritatively determined in this case, petitioner will have to choose between abandoning its opportunity to compete more effectively, or undertaking the heavy burden of another round of litigation in another circuit with another formidable adversary. Under these circumstances, it is submitted that this Court's usual practice of awaiting a conflict in the circuits should give way to the economic disparity here presented, and to the desirability of now deciding this test case which is of such great importance to many of the companies in the cosmetic industry.

The relatively modest economic strength of the patentee in this case, and of independent inventors generally, gives rise to one other public policy factor deserving of consideration. Although a well financed patentee can readily sue in

a favorable circuit, petitioner here felt compelled to sue in its home city (R. 631), despite the fact that, according to the figures assembled by a recent Senate Subcommittee Staff Report, patentees are successful in the Eighth Circuit Court of Appeals in only 9% of the patent infringement cases, as compared with 22% success in all Courts of Appeals, and 38% success in the Courts of Appeals for the Fourth and Fifth Circuits.[5] During the 1949-1958 period covered by the report, only the Court of Appeals for the Second Circuit showed a lower percentage of patentee success than the Eighth Circuit, and the Second Circuit had an evident change of policy after *Lyon v. Bausch & Lomb Optical Co.*, 224 F.2d 530 (1955). As long as Congress sees fit to leave the patent system in effect, public policy would seem to require at least some reasonable equality of opportunity for patentees in all circuits. Petitioner has been denied that equality.

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[5] "An Analysis of Patent Litigation Statistics," Staff Report of the Subcommittee on Patents, Trademarks and Copyrights of the Committee on the Judiciary, United States Senate, 86th Congress, 2nd Session (1961). Table 20 on pages 24 and 25 tabulates Court of Appeals findings on patent validity and infringement, by circuit and by year, for the years 1949-1958. Excluding the Court of Appeals for the District of Columbia, which decided only three cases during this period, and combining the other figures presented in Table 20, the percentages of patentee success during the years 1949-1958 were as follows:

First Circuit	16.7 %	Seventh Circuit	25.8%
Second Circuit	7.25%	Eighth Circuit	9.4%
Third Circuit	14.5 %	Ninth Circuit	22.4%
Fourth Circuit	37.9 %	Tenth Circuit	27.3%
Fifth Circuit	37.9 %	All Ten Circuits	21.9%
Sixth Circuit	15.4 %		

CONCLUSION

For the foregoing reasons, this petition for a writ of certiorari should be granted.

Respectfully submitted,

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June 1, 1962

APPENDIX A

Opinion of the Court Below

UNITED STATES COURT OF APPEALS
For the Eighth Circuit

No. 16,753 and No. 16,754.

L. S. Donaldson Company and G. Barr and Company,
Appellants,

vs.

La Maur, Inc.,
Appellee.

La Maur, Inc.,
Appellant,

vs.

G. Barr and Company,
Appellee.

Appeals from the United States District Court for the District of Minnesota.

[February 19, 1962.]

Before SANBORN and VAN OOSTERHOUT, Circuit Judges, and GRAVEN, District Judge.

GRAVEN, Senior District Judge.

In the present action the plaintiff below, La Maur, Inc., charged the defendants below, L. S. Donaldson Company and G. Barr and Company, with patent infringement. It also charged the latter defendant with the misappropriation of a trade secret. The subject matter of the controversy is an aerosol hair spray. The trial was to the Court without a jury. The trial court held that the patent involved was valid and that it had been infringed by both defendants. It also held that the plaintiff had not established its claim for the misappropriation of a trade secret. The memorandum opinion of the trial court in connection with its decision is reported at 190 F.Supp. 771. Both defendants appealed from the decision of the trial court as to the validity of the patent and as to the infringement by them. The plaintiff appealed from the decision of the trial court denying it relief for the misappropriation of the trade secret. Since there are two appeals involved, the parties will be referred to throughout as plaintiff and defendants rather than as appellants and appellees.

The plaintiff, La Maur, Inc., is a Minnesota corporation engaged in the manufacture of cosmetics at Minneapolis, Minnesota. The defendant, L. S. Donaldson Company, is a Minnesota corporation which operates a department store in the same city. The defendant, G. Barr and Company, is an Illinois corporation engaged in the manufacture and processing of cosmetic products at Chicago, Illinois. The defendant, L. S. Donaldson Company, is a customer of the defendant, G. Barr and Company, and the accused product handled by the former was supplied to it by the latter. The latter handled the entire defense of the action.

It seems that the purpose of a hair spray of the type in question is to provide hair with a brilliant or luster-like film. Experience in the industry has shown that to achieve the most satisfactory result a number of substances are required. A substance having a resin ingredient is generally used to provide brightness and luster. Such an ingredient tends to be hard and brittle. In order to avoid the cracking of the film made by that ingredient, it is necessary to modify its somewhat harsh and brittle characteristics. The film is made more flexible by the use of a plasticizer. It is desirable that the film dry quickly after application. Therefore, the

film ingredient should be carried in a liquid which dissolves quickly upon exposure to the air. It is also desirable that the film be readily removable by washing the hair in water. While perfume performs no particular function in a hair spray, it is frequently added for the purpose of customer appeal. The liquid carrier for the substances may be alcohol or water, or both. In the earlier years of the hair spray industry, hair sprays were contained in nonaerosol type containers. However, it was found that hair sprays are best applied by means of aerosol type containers. In aerosol type containers use is made of a chemical known as dichlorodifluoromethane, commonly called Freon. Freon has long been manufactured by a nationally known organization and widely used for many types of sprays. The composition of the accused product involves a scientific field known as polymer chemistry. This has to do with certain types of large molecules known as polymers. Polymers may be either of natural or synthetic origin. They are more commonly of synthetic origin. Synthetic polymers have been successfully used in the manufacture of synthetic rubber, plastics, nylon and other synthetic fibres.

The relevant facts and chronology in the present case are largely as follows. Prior to 1938 the I. G. Farben Industry in Germany had developed a synthetic polymeric resin known as polyvinylpyrrolidone. In polyvinylpyrrolidone there are two well-known types of chemical groups. One is the vinyl group and the other is the pyrrolidone group. The vinyl groups combine with each other in a linear form and may be compared to links connected to form a chain. Each link is a vinyl group so to speak and to each vinyl group is attached a pyrrolidone group. The ratio of vinyl groups to pyrrolidone is 1:1, so one unit of the big (polymer) structure is vinylpyrrolidone and as these units join they form a polymer. The polymer forms a rather hard, resinous material, the plasticity of which may be modified with plasticizers. Polyvinylpyrrolidone usually comes in the form of white powder. It is soluble in both water and alcohol.

The General Aniline & Film Corporation is a large company engaged in the manufacture and distribution of chemical products. Several years prior to 1951 it had secured the rights to manufacture and distribute polyvinylpyrrolidone, generally known and referred to as PVP. Prior to 1952 PVP

had been sold for pharmaceutical uses, the most important of which was as a substitute for blood plasma. In April, 1951 M. L. Spiegel, the president of the plaintiff, acting for the plaintiff, ordered a sample of PVP iodine from the General Aniline & Film Corporation. Along with the sample requested, the company sent a sample of PVP as being of possible interest to the plaintiff. In making tests of the samples, Spiegel noticed that PVP when rubbed on the back of his hand left a very shiny surface. The thought occurred to Spiegel that PVP might be usable in a hair fixative.

In 1951 and prior thereto, the defendant, G. Barr and Company, had facilities which were especially adaptable for the filling, loading, or packaging of cosmetic products in containers. It is one of the largest companies in that field. On July 6th, 1951, the plaintiff wrote the defendant, G. Barr and Company, stating that it was making experiments in developing a hair lacquer formula. It further stated that it was sending samples of a formulation which it desired to have packaged in propellant cans. It stated that in the samples anhydrous alcohol was used as a solvent and inquired whether the use of such alcohol was an absolute requirement in connection with the packaging of the formula. Anhydrous alcohol is a water-free alcohol. On July 9th, 1951, the defendant, G. Barr and Company, informed the plaintiff that anhydrous alcohol and anhydrous materials throughout were absolutely necessary since the presence of water would cause corrosion in the cans. Sample aerosol cans containing the plaintiff's formula were made up for the plaintiff by the defendant, G. Barr and Company, on or about July 10th, 1951. Prior to 1952 the General Aniline & Film Corporation had been selling PVP for pharmaceutical use at $12.00 a pound, which made it too expensive for use in hair sprays. Early in 1952 the plaintiff made arrangements with the General Aniline & Film Corporation to purchase dry PVP of a nonpharmaceutical grade for $6.00 a pound. The price was subsequently reduced to $3.00 a pound.

In March, 1952, the defendant, G. Barr and Company, packaged in aerosol cans a supply of plaintiff's hair spray formula. The formula met with a favorable response on the part of customers selected by the plaintiff. Because of that recognition, the plaintiff proceeded to market its preparation with ever increasing success. It is marketed under the trade

name of "Style." On July 31st, 1952, Spiegel, acting in behalf of the plaintiff, filed an application in the United States Patent Office for a "Sprayable Water-Free Alcoholic Polyvinylpyrrolidone Hair Preparation." On January 27th, 1959, the plaintiff was granted United States Patent Letters No. 2,871,161 for that preparation. In the Patent Office proceedings Spiegel appeared as the applicant. In the proceedings in the trial court and in the briefs and arguments, the patent is frequently referred to as the Spiegel patent. For convenience in reference, the plaintiff will be considered to be the applicant for the patent and the patent will be referred to as plaintiff's patent.

The plaintiff, following March, 1952, continued to make use of the defendant, G. Barr and Company, for the packaging of its formula on an ever increasing scale. The plaintiff made use in its preparation of a hydrophobic plasticizer known as diethyl phthalate. A hydrophobic plasticizer is one that is not compatible with water. That type of plasticizer reduces the moisture sensity of the film on the hair without interfering with the removal of the film by washing.

The plaintiff, when it desired its preparation to be packaged, would send the defendant, G. Barr and Company, a supply of PVP. It used the same drums as were used by the General Aniline & Film Corporation in shipping PVP to it. Before sending the drums containing the PVP to the defendant, G. Barr and Company, the plaintiff would remove all the labels that were on the containers which indicated their contents and then identify the drums as containing "Resin LM" or "Synthetic Resin LM." The plaintiff would also send the defendant, G. Barr and Company, bottles identified as "perfume" which contained the plasticizers and perfume. The defendant, G. Barr and Company, manifested an interest in the materials being used by the plaintiff in its preparation. It early identified the plasticizer as being diethyl phthalate. The defendant, G. Barr and Company, was unable to identify the ingredient "Synthetic Resin LM" by analyses made by it and two other chemical companies. In June, 1952, one of the employees of the defendant, G. Barr and Company, noticed that one of the drums shipped by the plaintiff still bore the original identification label covered over with paint. Paint remover was applied and the label identifying the contents of the drums as PVP was exposed. Thus, since June,

1952, the defendant, G. Barr and Company, has known that the plaintiff was using PVP in its preparation. Late in 1952 the plaintiff ceased to employ the defendant, G. Barr and Company, as the loader of its preparation. Late in 1951 and early in 1952 the plaintiff, in negotiating with the General Aniline & Film Corporation for a lower price for PVP, made known to the latter that PVP was being used as a base for a hair spray.

The plaintiff, as heretofore noted, on July 31st, 1952, filed an application for a patent on its preparation in which the components of the hair spray sought to be patented were set forth. It is the practice of the Patent Office to keep applications for patents secret until final disposition, subject to being disclosed in the case of interference proceedings. On March 27th, 1953, Anthony James Martinelli, acting for the General Aniline & Film Corporation, filed an application in the Patent Office for a patent on a hair spray preparation of a PVP type. On February 21st, 1957, the Patent Office declared an interference proceeding between the plaintiff's application and the Martinelli application. Martinelli made a motion to dissolve the interference on the ground that the invention described in both applications was unpatentable over the prior art. That motion was overruled by the Patent Office and the matter was set down for hearing on the question of priority of invention. Martinelli defaulted and the Patent Office terminated the interference proceeding in favor of the plaintiff. The patent was subsequently issued to the plaintiff on January 27th, 1959.

The defendants, among other contentions, urge that the patent in suit is invalid. They contend that the claimed patent is lacking in invention over the pertinent prior art as required by Sec. 103, Title 35, U.S.C. and also that file wrapper estoppel is involved.

The patent was granted for a "Sprayable Water-Free Alcoholic Polyvinylpyrrolidine Hair Preparation." The application of the plaintiff as it appears in the patent contains a number of statements. Among those statements are the following:

> "This invention relates to a hair styling composition and more particularly to a composition for application to the surface of hair which will give it luster and retain

it in the desired set, and to a method of preparation thereof.

"Prior to my discovery, many preparations have been proposed for setting the hair and for causing the hair to have a desired degree of luster or brilliance. One class of preparations which have been extensively used are those containing gums such as tragacanth or karaya, which are suspended in a colloidal water solution and applied to the hair with combing and brushing. The hair is then formed in the desired style and upon drying retains the set. The composition, however, must then be brushed and combed from the hair since it has a dry and dull appearance and cracks and breaks when disturbed.

"Another class of hair styling preparations includes the lacquers, principally shellac solutions, which are combed or applied to the surface of the hair which has been preformed to the required style and which lacquer will dry to a hard surface film which gives the hair a sculptural appearance. The hair has a high degree of luster but again cannot be disturbed without cracking and breaking the film. Furthermore, the lacquers may be insoluble in water and require considerable combing and brushing together with washing or other chemical treatment to remove entirely the lacquer film preparatory to a new application. The use of all these previous setting compositions thus entail considerable effort in the application and removal thereof and much time is consumed in their use, especially in time required for drying the gum preparations which are placed in water suspension.

"In the course of experimentation with the view of finding a hair styling preparation which lacked either the sticky characteristics of the natural gums, or the cracking and breaking characteristics of shellac, I discovered that the compound known as polyvinylpyrrolidone would furnish a beautiful luster to hair, and also the desired styling qualities without the detrimental characteristics found in the prior art substances. Polyvinylpyrrolidone is a polymerization product of the N-vinyl pyrrolidone monomer having the following formula: • • •

"For purposes of application to the hair to produce a high luster, quick drying film, the polymerized N-vinyl

pyrrolidone may be combined in an alcoholic solution with a propellant of the class known as Freon, so as to be applied as a spray.

"An object of the invention is to provide a hair setting composition embodying a polymerization product of N-vinyl pyrrolidone that may be easily and quickly applied to the hair by combining said material in a solution with mutually compatible substances that will permit application to the hair by spraying.

"Another object is to be able to provide controlled flexibility of the film by combining a plasticizer with the other materials forming the composition.

"In order to apply the film of polymerized N-vinyl pyrrolidone to the surface of the hair and achieve the desired results in a short time, I may dissolve the product in a quick drying solvent, such as ethyl alcohol. Since polymerized N-vinyl pyrrolidone is soluble in both alcohol and water, it is not critical if there is a negligible quantity of water present in the alcohol. However, where my hair styling composition is to be used in a spray-type container having self-generated pressure, I have found that it is possible to use an alcoholic solution of the polymerized N-vinyl pyrrolidone with dichlorodifluoromethane (or related compounds and mixtures thereof commonly known in the trade as Freon) as the propellant.

" • • •

"I achieve a still further advantage with my unusual hair styling composition by not only furnishing a film with a useful flexibility, but may even further control the plasticity or flexibility of the film to suit individual tastes by the addition of a plasticizer. Thus, by adding a small amount of di-ethyl phthalate, normally in the order of ⅜ of 1 percent, I can materially increase the flexibility or plasticity of the applied film. It is, of course, not desirable to make the film so pliable as not to function properly in setting the hair. The amount of di-ethyl phthalate above mentioned will give a very good quality of flexibility to the hair under average conditions. Where a stiffer film is desired as will more nearly approach the lacquer type of appearance, the di-ethyl

phthalate may be omitted. Where the opposite result is desired the diethyl phthalate content may be accordingly increased.

"• • •

"Of the solvents tried, I prefer alcohols and particularly ethyl alcohol. Where my method of preparation is for the purpose of obtaining a self-propelling composition, I mix mutually the polyvinylpyrrolidone with absolute alcohol and dichlorodifluoromethane. • • •

"It may thus be seen that I have provided a hair styling composition having unusual properties in lusterizing and setting the hair which may be quickly and easily applied and yet which may be quickly and easily removed, this composition being both water soluble and alcohol soluble, and additionally soluble in the self generating propellant, dichlorodifluoromethane, when mutually dissolved in the anhydrous alcohol. • • •"

There are nine claims set forth in the patent. The trial court found that claim 8 was a typical claim and it is not contended by any of the parties that such is not the case. Claim 8 reads as follows:

"A sprayable hair-preparation, comprising a substantially water-free alcoholic solution of polyvinylpyrrolidone and Freon."

It is well settled that the claims in a patent are the measure of the patentee's rights. Such claims are to be read and interpreted in the light of any claims that were rejected or withdrawn. *Rota-Wash Corp. v. Frye Manufacturing Co.* (D.C. 1961), 197 F.Supp. 54, 60. The plaintiff's patent application travelled a long, tortuous and troublesome path before it reached the goal of an issued patent. There were repeated rejections of claims by the examiner, following which the plaintiff would amend certain claims, cancel certain other claims, and then in many instances reassert, in substance, claims which had been rejected or cancelled. The application originally contained twelve claims. On April 10th, 1953, an examiner made his first report on the application. The examiner cited and referred to prior patents of Luckenbach, Bennett, Bohme and Keil and to published articles by Murat and Lesser. His report was as follows:

"All the claims are rejected as lacking invention over anyone of Luckenbach, Bohme, Keil or Bennett in view of Murat. The latter shows, page 350, the substitution of solutions of polyvinylpyrrolidone for previously used solutions of gum arabic or of polyvinyl alcohols. In view of this suggestion, invention is not seen in substituting, for the vinyl polymers and gums in the hair dressing compositions of Luckenbach, Bohme, Keil or Bennett, the polyvinylpyrrolidone of Murat. Bennett, page 2, column 1, shows the inclusion of a plasticizer for the resinous hair-setting preparation, so that the feature of claims 6 and 7 of including a plasticizing agent is not seen as dependable upon for spelling out invention.

"The feature of claims 5, 9 and 12 of including a Freon propellant is not seen as inventive, in view of Lesser (especially page 472)."

In response to the rejection by the examiner of its previous claims, the plaintiff on October 9th, 1953, filed an amended application. In the amended application it cancelled claims 1, 11 and 12 of its previous application and added claims 13 and 14. Cancelled claim 12 read as follows:

"The method of preparing a hair setting and lusterizing composition which consists in dissolving polyvinylpyrrolidone in a quick drying and self-propelling solution having absolute ethyl alcohol and dichlorodifluoromethane as its mutual solvents, said solution having the property of being immediately applicable to the surface of the hair for the complete finishing and styling thereof."

On December 22d, 1953, the examiner made his second report. He cited as references patents of Richards and Schildknecht and certain publications by Janistyn, Iddings, Cooper and Fulton and an article entitled "PVP," published by the General Aniline & Film Corporation. Janistyn was a German scientist who in 1950 had published a two-volume work entitled, "Reichntoffe, Seifen, Kosmetika," which, among other teachings, taught the use of PVP as a hair dressing. The examiner's report, in part, was as follows:

"All the claims are rejected as lacking invention over Janistyn, who shows the allegedly inventive concept. Note particularly page 256 (Vol. II of Janistyn, for the

employment of 'Luviskol' as a hair-fixative, the entry also teaching that a glass-clear, hard film is formed on drying from an aqueous solution. See also, at page 159 (Vol. II) of Janistyn, the listing of 'Luviskol' as an equivalent of or alternative for natural gums and polyvinyl * * * and the like resins, for hair fixative or wave-set purposes. Since applicant's polyvinylpyrrolidone is the same as the Janistyn 'Luviskol', invention is not seen in applicant's claims over Janistyn. Attention is also directed in Vol. II to the required maintenance of plasticity [sic] (muss weich * * * bleiben) and the suggested additives of page 160 and at page 164 the inclusion of a plasticizer (Weichmacher).

"The feature of the claims of including a plasticizer for the polyvinyl resin is additionally considered uninventive in view of either of Richards or Schildknecht. In Richards, note page 2, column 1 for the inclusion of a plasticizer in a polyvinyl resin aerosol composition for plasticizing the resulting film. See, also, Schildknecht, column 5, lines 58-61, for the obviousness of including with polyvinylpyrrolidone resins, plasticizers and solvents. It is clear that these are obvious expedients and cannot be relied upon as spelling out invention.

"All the claims are additionally rejected as lacking invention over anyone of Luckenbach, Bohme, Keil or Bennett in view of Janistyn. The latter, at page 159 (Vol. II) shows the substitution of polyvinylpyrrolidone for previously used gum arabic, polyvinyl alcohol, and the like hair-fixatives of the primary references. Luckenbach and Janistyn teach the spraying of the fixative compositions onto the hair, and Bennett teaches the inclusion of a suitable plasticizer for the resulting resin. These features, accordingly, cannot be relied upon for invention, being obvious.

"Lesser, Iddings, Cooper and Fulton further show as obvious the disclosed details of spray application of the involved compositions. All the claims are additionally rejected as lacking invention over anyone of Janistyn, Luckenbach, Bohme, Keil or Bennett in view of anyone of Richards, Schildknecht, Lesser, Iddings, Cooper or Fulton, whose teachings are discussed above.

"Claim 2 is additionally rejected as being fully anticipated by Janistyn (page 256, Vol. I).

"Claims 2, 6 and 10 are further rejected as being fully anticipated by Schildknecht. In re Thuan, 554 O.G. 14.

"Claims 2, 3, 4, 8 and 10 are rejected as being fully anticipate[illegible] 'PVP', especially at pages 112-113.

"All [illegible] claims are additionally rejected as lacking invention over 'PVP', which shows polyvinylpyrrolidone applied in aerosol form (see especially pages 141, 142 and 146). To employ conventional aerosol generators and solvents for the use shown in Janistyn is not seen to involve invention."

In response to the second report of the examiner, the plaintiff on June 21st, 1954, further amended its application. In that amendment it cancelled claims 2, 4, 6, 10, 13 and 14. It amended a number of the other claims and added claims 15 and 16. Cancelled claim 14 read as follows:

"The process of preparing and applying a hair setting and lusterizing composition which comprises dissolving polyvinylpyrrolidone in a quick drying solvent such as ethyl alcohol and dichlorodifluoromethane, and spray applying the solution in finely divided state so as to cast a film upon the hair."

On March 9th, 1956, the plaintiff further amended a number of the claims and added claim 17. On March 30th, 1956, the examiner rejected all claims and added "A definite issue being reached, this rejection is made *FINAL*." However, the rejection was not final. On May 29th, 1956, the plaintiff made an application for the withdrawal of the final rejection, which was granted. In connection with that application, the plaintiff further amended its claims in a number of particulars. In the amendment it cancelled claims 9 and 16 and added claim 18. Claim 18 was as follows:

"A substantially water free hair styling composition for spray application for setting and lusterizing the hair comprising from 4% to 8% of polyvinylpyrrolidone in solution in absolute ethyl alcohol and, as a propellant, dichlorodifluoromethane."

On June 26th, 1956, the examiner determined that claims 5, 7 and 15 were allowable. He stated with some corrections

claim 18 would be allowable. On August 29th, 1956, the plaintiff, by amendment, made some changes in claims 17 and 18. On August 28th, 1956, the examiner ruled that all claims still in the case were allowable. In connection with that ruling the examiner suggested that because of the interference matter the applicant make the following claim:

> "A sprayable hair preparation comprising a substantially water-free alcoholic solution of polyvinylpyrrolidone and Freon."

The plaintiff amended its application to make the suggested claim. That claim appears as claim 8 of the patent in suit and, as heretofore noted, is typical of all of the claims in the patent.

It was heretofore noted that the defendants raised the issue of file wrapper estoppel. That rule is, in substance, that a patentee who has a claim rejected by the Patent Office and who acquiesces in that rejection may not thereafter claim the benefit of the rejected claim. *Morgan Envelope Co. v. Albany Perforated Wrapping Co.* (1894), 152 U.S. 425, 429, 14 S.Ct. 627, 38 L.Ed. 500. In the Patent Office proceedings that office rejected claims which might have been construed as claiming the use of a plasticizer or the use of Freon constituted invention. The plaintiff does not now claim that the use of a plasticizer or the use of Freon constituted invention. What it does now claim as constituting the invention is what is set forth in present claim 8. It appears that while the Patent Office time and again rejected claims which apparently were not substantially different from claim 8 and the other similar claims in the present patent, it finally did allow such claims. In other words, while the plaintiff's present claims were repeatedly rejected by the Patent Office the plaintiff did not acquiesce in such rejections but by repeated amendments kept asserting those claims and finally prevailed. Therefore, it cannot be said that the plaintiff is estopped from claiming invention based on claim 8 and similar claims.

Section 282, Title 35, U.S.C., provides, in part, as follows:

> "A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it. * * *"

That presumption of validity is entitled to great weight where it appears that the Patent Office gave careful consideration to

the applicable prior art. See cases cited by the trial court. 190 F.Supp. 771, 780. The presumption of validity is weakened if there is applicable prior art not considered by the Patent Office. See *Holstensson v. V-M Corp.* (D.C. 1961), 198 F.Supp. 779, 784, and cases therein cited. An applicant for a patent is presumed to know of and is chargeable with knowledge of everything in the prior art in the field in which he is working and also of all devices in that field which have been in prior public use. *Landis Mach. Co. v. Parker-Kalon Corp.* (2d Cir. 1951), 190 F.2d 543, 546; *Zephyr American Corp. v. Bates Mfg. Co.* (3d Cir. 1942), 128 F.2d 380, 385.

The defendants contend that there was certain applicable prior art which was not before the Patent Office in its consideration of the claims. Prior to the entrance of the plaintiff into this particular field, the defendant, G. Barr and Company, had been engaged in the packaging of hair sprays for manufacturers of cosmetics. Among others it was packaging a hair spray composition known as Liquinet for Raymond Laboratories. That composition consisted of Elastolac, anhydrous ethyl alcohol and Freon. Elastolac was a shellac resin. The defendants pleaded those matters in their answer. At the trial, counsel for the plaintiff stated that the plaintiff conceded that prior to the time the plaintiff entered the field the defendant, G. Barr and Company, had packaged a hair spray in aerosol form in which shellac was the resin and anhydrous alcohol and Freon were employed. Shellac is a natural resin. It was described by the plaintiff's principal chemical expert witness as being a "low molecular weight polymer." The same witness testified that polyvinylpyrrolidone was a "high" polymer. It is stated by the plaintiff in its application for the patent (portions of which were heretofore set out) that shellac solutions were in use as hair lacquers. It further stated therein that while shellac solutions gave the hair a high degree of luster they could not be disturbed without cracking and breaking the film and that, furthermore, such type of lacquer may be insoluble in water. It appears that the shellac resin in undiluted form is not compatible with Freon. Therefore, in packaging the composition the defendant, G. Barr and Company, first dissolved the resin ingredient in anhydrous alcohol. It was then loaded into cans containing Freon. It does not appear that it was made known to the Patent Office that prior to the plaintiff's

entrance into the field a composition containing the ingredients of shellac resin, anhydrous alcohol and Freon was being manufactured and sold to retailers and the general public.

The principal question presented is what invention, if any, the plaintiff did make. The answer to that question depends upon the construction of claim 8 in light of the applicable prior art. The plaintiff does not now claim that the use of a plasticizer in a hair preparation involves invention. It does not now claim that the use of Freon to propel the preparation would involve invention. The defendants assert that it is unclear and uncertain as to what the plaintiff now claims in regard to the matter of invention. The long and tortuous course of the plaintiff's application through the Patent Office has created some lack of clarity as to that matter. In its last brief and argument filed herein, the plaintiff proceeded to summarize the proceedings in the Patent Office and to explain what issues were presented to and decided by that office. In that summary and explanation, the General Aniline & Film Corporation is referred to as GAF. In its summary and explanation, the plaintiff stated, in part:

"Spiegel made three discoveries, as follows:

> "1. Most broadly, he discovered that a PVP film can be used as a hair lacquer. We shall refer to this as the 'general discovery.'
>
> "2. More specifically, he discovered that a PVP film deposited on the hair from a substantially water-free alcoholic solution produces a superior hair lacquer. We shall refer to this as the 'water-free alcohol discovery.'
>
> "3. Still more specifically, he discovered that a combination in solution of PVP, substantially water-free alcohol and Freon is compatible. We shall refer to this as the 'compatibility discovery.'

"The water-free alcohol discovery was less broad than the general discovery because the water-free alcohol discovery was limited to water-free alcohol as a solvent whereas the general discovery was not. Similarly, the compatibility discovery was less broad than the water-free alcohol discovery because the compatibility discov-

ery was limited to solutions with Freon whereas the water-free alcohol discovery was not.

"Thinking that he was the first to make each of these discoveries, Spiegel filed his initial patent application describing the invention broadly as well as specifically, and including broad as well as specific claims * * *. This is the ordinary practice in the filing of patent applications * * *.

"When the examiner found the German Janistyn reference * * *, Spiegel learned that his general discovery was anticipated, because PVP was included on a list of 30 substances usable as hair fixatives from water solution * * *. Spiegel thereupon dropped his broad claims to the general discovery, limited his remaining claims to the combination in solution of PVP, water-free alcohol, and Freon, and amended his specification to conform with the limited claims * * *. With his claims so limited, Spiegel contended that he had made a patentable invention, both upon the broader ground of his water-free alcohol discovery and upon the narrower ground of his compatibility discovery * * *. After various technicalities were attended to, the Patent Office found the Spiegel claims to be allowable and declared the interference between Spiegel and Martinelli.

"GAF called to the attention of the Patent Office the fact that PVP had been known as a hair preparation in water solution since 1948 * * *, that aerosol products, including various kinds of aerosol hair sprays, were known * * *, and that alcohol had been used as a mutual solvent in aerosol products * * *. Of course, the Patent Office also knew from Spiegel's own patent application that lacquers such as shellac had been combed or applied to the surface of the hair * * *. On the other hand, a myriad of known hair fixative materials are not compatible with Freon even in the presence of alcohol, and nothing in the prior art suggested that any hair fixative material soluble in both alcohol and water should preferably be applied to the hair from a water-free alcoholic solution * * *. Finding that PVP was not analogous to any material previously known to be compatible with alcohol and Freon, the Patent Office held that Spiegel's compatibility discovery sustained the patentability of

> the invention * * *, and also referred to Spiegel's broader argument in pointing out that GAF's principal reference did not teach 'the application of a sprayable alcoholic PVP solution on human hair' * * *."

In the portion of the summary above set forth, the Court has omitted the citations to the record made by the plaintiff therein.

It is clear that the plaintiff now relies for invention upon what it refers to as the "water-free discovery" and upon what it refers to as the "compatibility discovery," i.e., the compatibility of PVP, water-free alcohol and Freon. The view of the trial court as to the matter of invention was stated as follows (190 F.Supp. at page 781):

> "In essence, Spiegel's invention was of the compatibility of Freon, alcohol and PVP, and of the application of PVP to the hair from a substantially water-free alcohol solution."

The trial court further stated (190 F.Supp. at page 782):

> "The validity of the patent is strongly supported by Dr. Mark [an expert witness for the plaintiff], who concluded that Spiegel's invention was novel and that its novelty consisted principally in the compatibility of Freon, alcohol and PVP. * * *"

The application originally filed in the Patent Office contained this statement:

> "Since polyvinylpyrrolidone is soluble in both alcohol and water, it is not critical in this instance whether or not there is water present in the alcohol. The quality of the film formed, I have found, is equally good in either case, the limiting factor being the quickness of drying which, of course, will be delayed the greater the amount of water present. I thus prefer to use an alcohol and water combination in which the alcohol predominates."

When the plaintiff in the course of the proceedings before the Patent Office was confronted with the teaching of Janistyn as to the use of PVP as a hair dressing in a water solution, it amended its application in regard to the matter of water so that instead of reading as above set forth it read as follows:

> "Since polymerized N-vinyl pyrrolidone is soluble in both alcohol and water, it is not critical if there is a negligible quantity of water present in the alcohol."

It presently reads this way in the application set forth in the patent. While the plaintiff's apparent change of front would probably not amount to file wrapper estoppel, it would seem to throw some light on the question of whether the absence of water constituted invention as now claimed by the plaintiff.

In neither claim 8 nor in any of the other present claims in the patent is any direct statement or reference made as to the matter of compatibility. However, reference is made to that feature in the plaintiff's statement preceding the claims. Since it is obvious that the three ingredients could not be successfully used in an aerosol type hair spray unless they were compatible it will be assumed that there inheres in claim 8 the claim of compatibility. The compatibility of PVP and alcohol had long been known. The experience of the defendant, G. Barr and Company, prior to the entry of the plaintiff into the field, had demonstrated that a resin ingredient dissolved in anhydrous alcohol was compatible with Freon. It also appears that PVP did not become compatible with Freon until after it had been dissolved in alcohol. It had been common practice to use alcohol as a solvent to render resins compatible with Freon which were otherwise incompatible with Freon.

It would seem upon final analysis that what the plaintiff did was to substitute one type of resin ingredient for another and that such an alternative had been earlier taught by Janistyn. While Janistyn recommended the use of PVP in a water solution, the fact that PVP was also soluble in alcohol was well known.

In *Inulite Co. v. Reserve Supply Co.* (1932), 60 F.2d 433, 437, this Court stated:

> "There is no invention in the mere substitution of one material for another."

Similarly, in the case of *Err-Klean Seat Pad Co. v. Firestone Tire & Rubber Co.* (1941), 118 F.2d 600, 602, this Court stated:

> "There is, of course, no invention in simply substituting one material for another in a manufactured product, in order to obtain the benefit therein of some of its known, superior qualities or characteristics."

Polyvinylpyrrolidone, anhydrous alcohol and Freon were old and well-known elements. The plaintiff combined these three elements. The prior art disclosed that they were subject to being combined. In this connection Judge Learned Hand observed in the case of *Rubin Condenser Co. v. Copeland Refrigeration Corp.* (2d Cir. 1936), 85 F.2d 537, 541:-

> "We do not of course forget that it is always the combination which counts, and that no patents, or almost none, are made from new elements. But all new combinations are not patentable combinations. Especially in chemical and electrical experiments happy solutions may be reached by testing out variants reached merely by permutations of old elements. Possibly the patent law should protect such industrial achievements, but it does not; the work of the well-equipped laboratory which by trial and error checks off a series of formulas, may be the proper path of industrial advance, as the Germans found it to be before the Great War; but it does not demand what we call 'invention.'"

It is the holding of this Court that the plaintiff's patent is invalid in that it is lacking in invention and that the finding of the Patent Office and the finding of the trial court that the plaintiff's patent did constitute invention were clearly erroneous.

The plaintiff stresses the commercial success of its preparation. It appears that in 1959 the sale of PVP type hair spray was running around 100,000,000 cans per year, of which approximately 3,000,000 cans were being sold by the plaintiffs. It is well settled that commercial success may not be resorted to as evidence of invention, unless that question is in doubt. *Frederick Stearns & Co. v. Grove's Laboratories, Inc.* (8th Cir. 1937), 87 F.2d 822, 824. However, where an invention is clearly lacking in novelty that requisite is not supplied by commercial success. *Paramount Publix Corp. v. American Tri-Ergon Corp.* (1935), 294 U.S. 464, 474, 55 S.Ct. 449, 79 L.Ed. 997. The patent in the present case is clearly lacking in novelty. Because of the holding of the Court as to the invalid-

ity of the patent in suit, it is not necessary to give consideration to the issue of infringement.

There remains for consideration the appeal of the plaintiff from the decision of the trial court denying its claim relating to misappropriation of a trade secret by the defendant, G. Barr and Company. The trial court held that the plaintiff had not established the asserted claim. The trial court did not specifically state the basis of that holding. In a brief of the plaintiff, it is stated that the defendant, G. Barr and Company, contended in the trial court that the disclosure made by the General Aniline & Film Corporation to the cosmetic trade constituted public disclosure and that the defendant G. Barr and Company, as a member of the public had a right to take advantage of the disclosure. The plaintiff implies that the trial court's denial of the plaintiff's claim was based on that ground. The following portions of the memorandum opinion of the trial court (190 F.Supp. at page 773) would seem to be of pertinence in that connection. The trial court referred to the defendant, G. Barr and Company, as Barr and to the General Aniline & Film Corporation as GAF.

> "On July 31, 1952, Spiegel filed his patent application. In November, 1952 plaintiff shifted his loading business from Barr to another company. Plaintiff maintains that during all of this time he kept the identity of his resin LM secret and that Barr knew that it was to be kept secret.
>
> "Meanwhile, the plaintiff had disclosed his secret to GAF in confidence. In November of 1952 GAF, allegedly taking advantage of the confidence, started to promote the use of PVP hair sprays throughout the industry, principally through one Edwin P. Hay, a salesman. Hay then told Barr about PVP hair spray.
>
> "It does not appear from the evidence that Barr at any time disclosed his previously acquired knowledge as to the real nature of resin LM. In December, 1952, GAF, through salesman Hay, and Barr, started the promotion of aerosol PVP hair spray using Spiegel's formula. GAF intended to sell the PVP, it being the only manufacturer of it, and Barr intended to get the loading business, it being the principal company engaged in that business. Subsequently, most of the major cosmetic com-

panies put out PVP hair spray using, it is claimed, the Spiegel formula."

The trial court adopted its memorandum opinion as its findings of fact and conclusions of law.

The defendant, G. Barr and Company, makes a number of contentions in connection with this phase of the litigation. It urges that the use by the plaintiff of PVP in its preparation did not have the status of a trade secret. It further contends that it did not have either a confidential or fiduciary relationship with the plaintiff. The trial court did not discuss those two matters or make any particular findings in relation to them.

It seems clear that during the time the plaintiff employed the defendant, G. Barr and Company, to load its preparation it was endeavoring to keep secret the fact that it was using PVP as an ingredient in its preparation. Therefore, such use would seem to have had the status of a trade secret. It is not so clear that a confidential or fiduciary relationship existed between the defendant, G. Barr and Company, and the plaintiff. However, if it be assumed that the relationship between them was such that the defendant, G. Barr and Company, was not privileged to misappropriate the information obtained by it in connection with the loading of the cans, such assumption would not be determinative of the question here under consideration. The trial court found that the defendant, G. Barr and Company, during the period that it was packaging plaintiff's preparation, did acquire knowledge that the plaintiff was using PVP as an ingredient in its preparation. The trial court further found that the defendant, G. Barr and Company, did not make any disclosure of that knowledge. It appears that following the time the defendant, G. Barr and Company, acquired the knowledge referred to it carried on intermittent experiments involving the use of PVP as an ingredient for hair sprays. The evidence relating to that matter was fully gone into at the trial. The trial court found that in November, 1952, the General Aniline & Film Corporation commenced the promotion of the use of PVP as an ingredient for hair sprays and imparted information as to such use to the cosmetic trade in general and that thereafter the defendant, G. Barr and Company, sought to secure loading business from those who were marketing PVP

type hair sprays. It would seem that it was the finding of the trial court that the defendant, G. Barr and Company, did not load or otherwise process hair sprays containing PVP as an ingredient until after the General Aniline & Film Corporation had promoted such use generally throughout the cosmetic trade. It would also seem that the trial court considered that at the time the defendant, G. Barr and Company, started loading or processing hair sprays having PVP as an ingredient it made use of what was then public information and that as a member of the public it had the right to make use of such information. The findings of the trial court referred to have substantial support in the evidence. Under that factual situation, the trial court was clearly correct in denying the claim of the plaintiff based on a misappropriation of a trade secret. The plaintiff in this connection cites and relies upon the case *Grepke v. General Electric Co.* (7th Cir. 1960), 280 F.2d 508, *cert. denied* (1960), 364 U.S. 899, 81 S.Ct 232, 5 L.Ed.2d 193. This Court has given consideration to that case but does not regard the holding in that case as being controlling or persuasive herein.

The defendant, G. Barr and Company, in its answer, raised the defense that the plaintiff's claim for misappropriation of a trade secret was barred by a Minnesota statute of limitation. The trial court did not pass on that question and that question is not reached here.

That portion of the judgment appealed from which adjudged the patent in question to be valid and infringed is reversed.

That portion of the judgment appealed from which denied the claim for misappropriation of a trade secret is affirmed.

APPENDIX B

Judgment of the Court Below

UNITED STATES COURT OF APPEALS
For the Eighth Circuit

Nos. 16753 and 16754.
September Term, 1961.

L. S. Donaldson Company and G. Barr and Company,
Appellants,

vs.

La Maur, Inc.,
and
La Maur, Inc.,
Appellant,

vs.

G. Barr and Company.

Appeals from the United States District Court for the District of Minnesota.

These causes came on to be heard on the record from the United States District Court for the District of Minnesota, and were argued by counsel.

On Consideratiton Whereof, It is now here Ordered and Adjudged by this Court that that portion of the judgment of said District Court appealed from which adjudged the patent in question to be valid and infringed be, and is hereby, reversed with costs; and that L. S. Donaldson Company and G. Barr and Company have and recover against La Maur, Inc., the sum of Ten Thousand Eight Hundred Ninety-one

and 57/100 ($10,891.57) Dollars for their costs in this behalf expended and have execution therefor.

It is further Ordered and Adjudged by this Court that that portion of the judgment of the District Court appealed from which denied the claim for misappropriation of a trade secret be, and is hereby, affirmed.

And it is further Ordered by this Court that these causes be and they are hereby, remanded to the said District Court for further proceedings not inconsistent with the opinion of this Court this day filed herein.

February 19, 1962.

APPENDIX C

Order of the Court Below Denying Petition for Rehearing

UNITED STATES COURT OF APPEALS
For the Eighth Circuit

No. 16753
September Term, 1961.

L. S. Donaldson Company and G. Barr and Company,
Appellants,

vs.

La Maur, Inc.,

La Maur, Inc.,
Appellant,

vs.

G. Barr and Company.

Appeals from the United States District Court for the District of Minnesota.

There is before the Court request of La Maur, Inc., for rehearing en banc, together with La Maur's petition for rehearing, and on consideration of such request and petition, it is the order of the Court that the request for rehearing en banc and the petition for rehearing be, and they are hereby, denied.

March 19, 1962.

APPENDIX D

District Court Opinion

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
FOURTH DIVISION

4-59-Civ-170

LA MAUR, INC.,

Plaintiff,

vs.

L. S. DONALDSON COMANY and
G. BARR & COMPANY,

Defendants.

MEMORANDUM DECISION

[January 23, 1961]

DEVITT, Chief Judge.

This is an action for the infringement of plaintiff's United States Patent No. 2,871,161, and for the misappropriation of a claimed trade secret belonging to plaintiff. Both the patent and the trade secret relate to an aerosol hair spray composed essentially of Freon, alcohol and polyvinylpyrrolidone (PVP).

The Basic Facts

Plaintiff La Maur is a Minnesota corporation engaged in the manufacture of cosmetic products. Its president is M. L. Spiegel, who patented the invention and assigned it to La Maur. Defendant L. S. Donaldson Company is a Minnesota corporation which operates a department store. Donaldson is charged with patent infringement, but is not named in the trade secret cause of action. Defendant G. Barr & Company

(Barr) is an Illinois corporation engaged in the loading (i.e. manufacturing) of aerosol products for a number of major companies in the cosmetic field, including Max Factor, Toni, Colgate, Hazel Bishop and others. Barr intervened in this case, carried the defense as to both defendants, and is a defendant as to both the patent count and the trade secret count.

Polyvinylpyrrolidone, commonly abbreviated PVP, is a member of a special class of chemicals called polymers. Although PVP has been known since it was synthesized in Germany in the 1930's, the only commercial application of the material prior to Spiegel's claimed invention was in the pharmaceutical field, especially as a blood plasma extender. Aerosol hair sprays had been manufactured and were in use for some time prior to Spiegel's claimed invention, but they were made with shellac-type materials which are not polymers and have no chemical similarity to PVP.

Spiegel is a chemist and, learning through trade bulletins of the manufacture of PVP by the General Aniline & Film Corp. (GAF) in the summer of 1951, started experiments with it for use in the cosmetic field. He dissolved PVP in alcohol and sent the solution to Barr in Chicago for loading with Freon in pressurized containers for the purpose of determining the compatibility of the ingredients. They were compatible, and the resulting hair spray turned out to be superior to any then known.

Early in 1952 plaintiff made arrangements to have its new hair spray manufactured by Barr. Plaintiff furnished the necessary PVP to Barr, identified only by the code name "resin LM." In March of 1952 plaintiff received his first shipments of aerosol PVP hair spray and has since been selling it under the trade name "Style", with marked success.

At about the same time, it is claimed by plaintiff, Barr made unsuccessful efforts to identify plaintiff's resin LM, both by attempted chemical analysis in its laboratory and by seeking the technical assistance of the Catalin Corporation of America and the American Cyanamid Company. The resin LM could not be identified. Plaintiff claims that in June of 1952 Barr identified resin LM when it succeeded in surreptitiously uncovering a GAF label which plaintiff had concealed with dark ink and another label on a container shipped

to Barr. The GAF label revealed that resin LM was PVP. It is further claimed that Barr immediately began experimenting with PVP hair spray for its own benefit, and took some of plaintiff's production stock of resin LM for that purpose.

On July 31, 1952 Spiegel filed his patent application. In November, 1952 plaintiff shifted his loading business from Barr to another company. Plaintiff maintains that during all of this time he kept the identity of his resin LM secret and that Barr knew that it was to be kept secret.

Meanwhile, the plaintiff had disclosed his secret to GAF in confidence. In November of 1952 GAF, allegedly taking advantage of the confidence, started to promote the use of PVP hair sprays throughout the industry, principally through one Edwin P. Hay, a salesman. Hay then told Barr about PVP hair spray.

It does not appear from the evidence that Barr at any time disclosed his previously acquired knowledge as to the real nature of resin LM. In December, 1952, GAF, through salesman Hay, and Barr, started the promotion of aerosol PVP hair spray using Spiegel's formula. GAF intended to sell the PVP, it being the only manufacturer of it, and Barr intended to get the loading business, it being the principal company engaged in that business. Subsequently, most of the major cosmetic companies put out PVP hair spray using, it is claimed, the Spiegel formula.

Between 1953 and 1956 the aerosol hair spray industry expanded tremendously, the majority of products being of the PVP type.

On March 27, 1953, one Martinelli, a GAF chemist, filed a patent application for PVP hair spray. On February 21, 1957 the Patent Office formally declared an interference proceeding between the Spiegel application owned by the plaintiff and the Martinelli application owned by GAF. This interference proceeding, which was actually a contest between La Maur and GAF, eventually terminated on January 27, 1959 in favor of Spiegel and the patent in suit was issued to plaintiff.

Subsequently plaintiff sought to issue licenses under the patent in suit to the entire trade. Some companies, e.g.

Breck, took licenses, but most of the trade refused. The defendant Barr indemnified his customers against liability for infringement of the patent. By this time the aerosol hair spray business was running at a volume of approximately a million dollars a year, largely PVP sprays, which, it is claimed, infringe on plaintiff's patent.

In their answer to the patent infringement cause of action, the defendants claim principally that the patent is invalid because it lacks novelty and was anticipated by the prior art, and that the claimed patent does not comply with the requirements of 35 U.S.C.A., Sec. 103 in that the claimed invention was one which would have been obvious, at the time the invention was allegedly made, to a person having skill in the art. They argue that plaintiff's claims are not stated in the full, clear, concise, and exact terms required by 35 U.S.C.A., Sec. 112.

The defendants also claim that even assuming that the patent is valid and complies with the requirements of 35 U.S.C.A., Sec. 102 and 103, and with Sec. 112, there has been no infringement because the hair spray loaded by Barr does not fall within any of the 9 claims of plaintiff's invention, and that it is a different product from Spiegel's, composed of copolymers of vinylpyrrolidone with vinyl acetate rather than of homopolymers of vinylpyrrolidone, as is Spiegel's.

As to the trade secret count, the defendant denies that La Maur had any trade secret, and asserts that it did nothing wrong and infringed none of plaintiff's rights in determining the true nature of plaintiff's resin LM or in experimenting with it or with PVP. At all events, it claims that if it did learn a trade secret, it did not violate a confidence, either by using it or telling others about it. Barr claims that the secret, if any there be, was published to the trade by GAF through salesman Hay, and then became public knowledge.

The Chemistry

A consideration of the issue presented requires some explanation of the principles of polymer chemistry which are involved. The plaintiff's principal witness in this regard was Dr. Herman Mark, Director of the Polymer Research Institute at the Polytechnic Institute of Brooklyn. It appears that Dr. Mark is one of the world's foremost authorities in the field of polymer chemistry. He testified at great length

about the principles involved and their application to the present case. Two other distinguished polymer chemists, Dr. Courtland Agre, a Professor from Augsburg College in Minneapolis (called by defendants) and Dr. Edward J. Meehan, a Professor from the University of Minnesota (called by the plaintiff) also testified on this subject. With the exception of the semantic issue hereinafter referred to, there appears to be no substantial disagreement between these three polymer chemists with respect to the following general aspects of the field.

Polymer chemistry covers a field where very large molecules have molecular weights which may be thousands of times greater than the molecular weights of other substances. A polymer molecule may be likened to a string of beads, with each individual bead being called a monomer or monomeric unit. If the beads are all alike, the material is called a homopolymer; if there are two different kinds of beads (illustrated by beads of two different colors), the material is called a copolymer. In what appears to be the orthodox definition, the word polymer embraces both homopolymers and copolymers, but it also appears that the word polymer in context is sometimes used in the more restrictive sense of homopolymer.

In the type of copolymers with which we are here concerned, the two different color beads (or monomeric units) occur in more or less random order within any given molecule, and copolymers can be prepared with any desired proportions of the respective constituents.

It also appears that polymer molecules, unlike molecules of other substances, are not all alike. Thus, with respect to molecular weight, for example, a polymer consists of a number of chain molecules of varying length. The molecular weight of a polymer, therefore, is expressed as an average. Because polymer molecules are so large, polymers have been found to possess physical strength which makes them useful as films and coatings, and also as fibers. Nylon, for example, is a polymer; so is synthetic rubber.

In this case, we are concerned with vinyl polymers. In addition to polyvinylpyrrolidone, other vinyl polymers to which frequent reference was made in the testimony, are polyvinyl acetate, polyvinyl chloride and polyvinyl alcohol. The function of the vinyl portion in each case is to provide the back-

bone or string which holds the beads together, whereas the properties of the polymer are contributed by the pyrrolidone or the acetate or the chloride or the alcohol portion attached to the string which is the vinyl group.

If we start out with a homopolymer of vinyl pyrrolidone, for example (illustrated by all white beads), we would have one set of properties, namely those imparted to the polymer solely by the pyrrolidone. By the same token, if we take a homopolymer of vinyl acetate (illustrated by all red beads) we would have those properties which are imparted to the polymer solely by the acetate. If we then make up a series of copolymers of vinyl pyrrolidone and vinyl acetate (i.e. strings of white beads and red beads together), having progressively larger and larger proportions of red beads, the resulting copolymers would exhibit a gradual change of characteristics from those of the homopolymer of vinyl pyrrolidone to those of the homopolymer of vinyl acetate. The reason for this is that each bead, or monomeric unit, brings with it its own characteristic properties, so that the more red beads that are incorporated with the white beads, the greater will be the evidence of red behavior, and the less will be the evidence of white bead behavior.

Although the different types of monomeric units comprising a copolymer are actually chemically bound together within each molecule of the copolymer, a copolymer actually appears to be something in between an ordinary chemical compound and a mixture. In the case of a mixture the proportions of the ingredients may be varied in any manner, and the properties of a particular mixture depend upon the proportions of the various constituents which are used. Plaintiff cites the example of a cup of coffee to which more and more cream is gradually added. In this respect, therefore, plaintiff says a copolymer is comparable with a mixture. On the other hand, there is no chemical transformation involved in preparing a mixture, whereas there is in the preparation of a copolymer. In the ordinary chemical compound, however, there is usually a definite and discreet change from one compound to another, and the constitutents of the ordinary compound can be put together only in a limited number of clearly defined proportions. But a copolymer is not limited by this characteristic of other compounds, and may be made in any desired proportions, with the properties changing gradually

as the proportion of one type of monomeric unit is increased while that of the other type is decreased.

In polymer chemistry the respective monomeric substituents of each copolymer tend to contribute their own characteristic properties. Although the properties of a particular copolymer cannot be predicted with mathematical certainty, the trend which the properties will follow, as the proportions of the respective substituents are changed, has long been predictable under the fundamental laws of polymer chemistry.

The fact that a copolymer is thus in effect something in between a chemical composition and a mixture is responsible for another important distinction between polymers and other chemicals. Ordinarily, gradual modification or dilution may only be brought about by a physical mixture. Thus, coffee may be diluted or modified by adding water or cream, and the modification or dilution may be carried out to any desired degree. In the case of copolymers, however, not only is physical dilution or modification possible (e.g. when it is desired to make a polymer film more flexible, this may be accomplished by physically mixing in what is known as a plasticizer), but in addition, a polymer may be modified or diluted chemically by incorporating within the polymer molecule itself appropriately selected monomeric units to impart the desired characteristics. Thus, a polymer may either be externally plasticized, by a physical mixture, or internally plasticized by copolymerization. Both are well known alternative techniques for making a polymer more flexible.

The Infringement Issue

With this background we may first consider the specific infringement issue and, later, the validity issue.

While it is theoretically possible that vinyl pyrrolidone might be copolymerized with a large number of other monomers, it appears that the only commercially available copolymers of vinyl pyrrolidone are those composed of vinyl pyrrolidone and vinyl acetate, in various proportions. Of these, the only one which the defendants have used or sold for hair sprays since the issuance of the patent is a product sold by GAF under the designation PVP VA E-735, which is a copolymer consisting of 70% vinyl pyrrolidone by weight and 30% vinyl acetate by weight. The only other commerical

product with which we are here concerned is the homopolymer of vinyl pyrrolidone, which is sold by GAF under the name PVP NP K-30. The NP indicates "non-pharmaceutical" grade, and the "K-30" indicates the average molecular weight, which is similar to the average molecular weight of the PVP/VA E-735.

The product with which plaintiff has been making its "Style" hair spray since 1952 is the homopolymer PVP-NP K-30. Barr likewise made aerosol hair sprays with PVP NP K-30 for a number of years. When the patent in suit issued on January 27, 1959, Barr had on hand some PVP NP K-30, and proceeded (with full knowledge of the patent, and after being advised by its counsel that the patent covered PVP NP K-30) to clean up its inventory by manufacturing and selling about 40,000-50,000 cans of infringing hair spray. Barr concedes infringement to this extent, but asserts that those 40,000-50,000 cans were negligible in comparison with the approximately 30,000,000 cans of aerosol hair spray manufactured by Barr annually. Barr also asserts that it has stopped using PVP NP K-30 completely since manufacturing these 40,000-50,000 cans.

Since the issuance of the patent in suit, however, Barr has also manufactured and sold millions of cans of aerosol hair spray containing PVP VA E-735, and the sole infringement issue in the case, therefore, is whether these hair sprays made with PVP VA E-735 infringed the patent.

Claim 8 of plaintiff's patent, which is typical, reads as follows:

> "A sprayable hair-preparation, comprising a substantially water-free alcoholic solution of polyvinylpyrrolidone and Freon."

Similar language appears in the first 7 claims, although each is more specific in emphasizing one aspect or another of the invention. As to the first 8 claims, therefore, the question is whether PVP VA E-735 constitutes, or is equivalent to, or is a mere dilution of "polyvinylpyrrolidone" as that term is used in the patent. Claim 9, instead of using the word "polyvinylpyrrolidone", refers to "a product essentially consisting of polymerized units of the" vinyl pyrrolidone monomer. Plaintiff's experts say that this language in Claim 9

simply makes explicit what is already implicit in the term "polyvinylpyrrolidone" as used in the other claims.

Plaintiff contends that PVP/VA E-735 is in substance and in reality, for hair spray purposes, the equivalent of PVP NP K-30, which is conceded to infringe. In support of its contention, plaintiff relies in the first instance on testimony by Dr. Mark. To prepare for his testimony, Dr. Mark studied the language of the patent in suit and all of the pertinent literature, and carried out a series of experiments to support his conclusions drawn from the basic laws of polymer chemistry. Dr. Mark's experiments included not only the PVP NP K-30 and the PVP/VA E-735, but also copolymers of vinyl pyrrolidone and vinyl acetate containing respectively 90% vinyl pyrrolidone, 80% vinyl pyrrolidone, 60% vinyl pyrrolidone, 50% vinyl pyrrolidone, and 30% vinyl pyrrolidone.

His measurements show that (1) while the addition of more and more vinyl acetate reduces the affinity or degree of bonding of the polymer film to the hair, and likewise reduces the amount of moisture which the film can pick up from the atmosphere, particularly at higher humidities, in both respects, the degree of change from the characteristics of the homopolymer PVP NP K-30 to those of the PVP/VA E-735 is not substantial; (2) the addition of more and more vinyl acetate does not bring about any sudden change in the character of the polymer, but only gradual changes; (3) none of the essential properties of polyvinylpyrrolidone as described in the patent in suit are lost or significantly interfered with by the insertion of 30% vinyl acetate; and (4) whatever modification occurs by reason of the incorporation of 30% vinyl acetate with the vinyl pyrrolidone in the accused PVP/VA E-735 is very similar to a modification suggested in the patent itself.

Thus, the patentee, in the patent, suggests that the film deposited by his hair spray may be made somewhat more flexible by the addition of a plasticizer called diethyl phthalate. This material is not only known to be a plasticizer, but is also known to be a water repellent one which tends to reduce the hygroscopicity of the polymer film, i.e. the amount of moisture which the plasticized film will pick up from the atmosphere. Charts were submitted by Dr. Mark showing that the

addition, by physical mixture, of larger and larger quantities of diethyl phthalate brings about a gradual reduction in the hygroscopicity of PVP NP K-30 films. This is the same effect which is achieved by internal modification when the vinyl pyrrolidone monomers are copolymerized with larger and larger amounts of vinyl acetate, instead of being polymerized alone, to form the homopolymer.

Witness Mark also illustrated the fact that both the PVP NP K-30 with diethyl phthalate and the PVP/VA E-735 are more flexible than the unplasticized PVP NP K-30. He also measured the hygroscopicity of films sprayed from various commercial hair sprays, including plaintiff's product "Style", the product of plaintiff's licensee Breck, and three of the products manufactured by Barr. The measurements show that the differences among them were insubstantial, even at high humidities.

In Dr. Mark's opinion, PVP/VA E-735 is equivalent to PVP NP K-30 for aerosol hair spray purposes. He explained the reason for this equivalence to be that the essential properties of the polymer in both cases are imparted by the vinyl pyrrolidone monomer. He said the vinyl acetate was essentially a dilutent.

Practical evidence of equivalency was presented which showed that during 1957, GAF's facilities for the production of the vinyl pyrrolidone monomer were unable to keep up with the demand, and it then had available only limited quantities of PVP NP K-30 and limited quantities of PVP/VA E-735. At least one of the major cosmetic companies used these two products interchangeably, from batch to batch, in the same hair spray under the same label.

Defendants, for their part, do not appear to seriously dispute the equivalency of PVP/VA E-735 and PVP NP K-30 for hair spray purposes. The most that can be said from the testimony of Barr's chief chemist on this subject is that the PVP/VA E-735 may be a slight improvement over the PVP NP K-30. The defendants offered no testimony to contradict plaintiff's showing that PVP/VA E-735 and PVP NP K-30 are essentially interchangeable, and work in the same way to achieve the same results by reason of the same essential ingredient, namely the vinyl pyrrolidone.

In applying the claims under this state of facts, the Court

is faced at the outset with the question of semantics. Dr. Mark, Dr. Agre and Dr. Meehan all testified on the semantics problems. All agreed that polymer names, such as polyvinylpyrrolidone, are used under some circumstances to embrace not only homopolymers, but also a spectrum of copolymers, and under other circumstances are used to refer only to homopolymers. To Dr. Mark and Dr. Meehan, the extent to which the term "polyvinylpyrrolidone" is generic depends upon the context and upon the realities of each particular situation. Thus, they say, any chemist with some basic knowledge of polymers would know after reading the patent, that not only the homopolymer of vinyl pyrrolidone, but also any one of a number of copolymers would have essentially the same characteristics for the purposes of the patent, provided only that the proportion of the added monomer is not made too great in any particular case. Thus, to the extent that the added monomer is merely a dilutent or a minor modifier, not changing any of the properties essential so far as the patent is concerned, Dr. Mark and Dr. Meehan would give the term "polyvinylpyrrolidone" used in the patent a generic meaning, covering a class of homopolymers and copolymers of differing molecular weights and differing compositions, so long as the vinyl pyrrolidone remains the basic operative ingredient, and is present in a sufficiently high proportion to provide the characteristics required by the patent.

Dr. Agre, on the other hand, while agreeing that dozens of different copolymers of vinyl pyrrolidone, in appropriate proportions, would be virtually indistinguishable from the homopolymer, insists that since the vinyl pyrrolidone monomer is the only one mentioned in the patent, the term "polyvinylpyrrolidone" should be interpreted to mean the homopolymer.

The Court, notwithstanding the extensive testimony by the polymer chemists on this semantic question, does not propose to decide the case on a purely semantic level, and, indeed finds no need to do so because the Court is of the view, and finds, that the product PVP/VA E-735 is polyvinylpyrrolidone in reality, regardless of whether or not it is polyvinylpyrrolidone as a matter of semantics. This is a case where substance and plain reality must govern, and not mere verbalism. Pertinently the Supreme Court said in Graver

Tank Co. v. Linde Air Products Co., 339 U.S. 605, 607, 94 L.Ed. 1097, 1101-1102, 85 USPQ 328, 330 (1950), that:

> "* * * courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form."

Plaintiff also urges that, for aerosol hair spray purposes, PVP VA E-735 is in effect simply a diluted form of PVP NP K-30, and that even if the semantic question be resolved to adopt the narrower view, there is infringement without resort to the doctrine of equivalents. It is, of course, the law that one cannot escape the claims of a patent by diluting its ingredients or inserting additives or modifiers which do not change the essence of the invention. Cree-Straub, Inc. v. Graham, 28 F.2d 324, 325-326, cert. den. 279 U.S. 840, 73 L.Ed. 987 (3rd Cir. 1928); Marks v. Polaroid Corporation, 129 F.Supp. 243, 267, 105 USPQ 10, 29 (D. Mass. 1955), aff'd 237 F.2d 128, 111 USPQ 60 (1st Cir. 1956), cert. den. 352 U.S. 1005, 1 L.Ed.2d 550, 112 USPQ 494. Chief Judge Sweeney said in the Polaroid case:

> "* * * the addition of other substances to those claimed in the patent does not avoid infringement where such additional substances are not known to radically change the composition of the patent. I. F. Laucks, Inc. v. Kaseno Products Co., D.C., 59 F.2d 811; Aluminum Co. of America v. Thompson Products, D.C., 25 F.Supp. 175, 38 USPQ 230; Union Carbide & Carbon Corp. v. Graver Tank & Mfg. Co., D.C., 106 F.Supp. 389, 93 USPQ 158."

The Polaroid case is particularly in point here; because in that case the Court relied on the testimony of Dr. Herman Mark to find that the accused polymer film was an infringement.

In Crozier-Straub, supra, for example, the patent in suit covered cinder blocks, consisting of various ingredients including coal, cinder and ashes. The alleged infringer added varying quantities of sand at different times. The greater the amount of sand, the less soundproof the blocks became, and the more difficult it became to drive nails into the blocks. These were two of the essential features of the blocks. The Court said at page 325 of 28 F.2d:

> "We cannot measure infringement by comparing shovelfuls of sand with shovelfuls of cinders; we can determine infringement only by finding whether the quantity of sand used destroyed the characteristics of the cinder block of the patent where cinder and ash alone are used as an aggregate."

The Court then considered the characteristics of the allegedly infringing blocks, and found infringement where the essence of the original characteristics were still retained by the accused blocks. See also Haynes Stellite Co. v. Chesterfield, 22 F.2d 635, 638 (6th Cir. 1927), where the Court said:

> "It is enough to say that we are fairly well satisfied, from the expert evidence and the practical tests made, that plaintiff is right, and that the carbon is a mere addition (even if sometimes an improvement) to the patented combination, the employment of which by defendant does not avoid infringement. The same conclusion must be reached as to the use of the fraction of nickel which the defendant substitutes for some of the cobalt (14 per cent of the whole, one-third of the cobalt-nickel total). Nickel and cobalt are not, precisely speaking, equivalents in making up the patented combination, but they have some of the same qualities; and the fraction of nickel substituted by defendant we are satisfied does not substantially change the character of the cobalt-chromium-tungsten compound."

To the same effect is Sperry Products, Inc. v. Aluminum Co. of America, 171 F.Supp. 901, 922, 120 USPQ 362, 379 (N.D. Ohio, E.D. 1959).

The foregoing cases, of course, relate to additives, diluting materials and modifiers which are added physically rather than chemically. In the present case, the vinyl acetate in PVP/VA E-735 is added chemically. Nevertheless, in the light of the principles of polymer chemistry previously described, the addition of 30% vinyl acetate by copolymerization with vinyl pyrrolidone is, in practical effect, a dilution with an appurtenant minor modification. It is my view that the legal principle which covers dilution and minor modification by physical means should be likewise applied in the polymer field where the dilution and minor modification may be accomplished chemically.

In the present case, defendants do not contest the general rule about additives and modifiers; indeed, they concede that the accused products do not avoid infringement by reason of the fact that they include an assortment of perfumes, brighteners, plasticizers and other additives. That being the case, since the practical effect of the vinyl acetate component corresponds generally with the practical effect of the physically added plasticizer mentioned by the patent, the applicability of the foregoing rule to PVP/VA E-735 seems appropriate.

With respect to the issue of infringement, the burden of proof is on plaintiff. The Court finds that plaintiff has met this burden, and finds on the basis of all the evidence in the case substantial infringement by both defendants of all nine claims of the patent in suit.

The Validity Issue

Spiegel filed his patent application on July 31, 1952. The Patent Office issued him a patent on January 27, 1959, after the application had gone through the usual procedures of investigation and examination in the Patent Office, and the somewhat inordinate procedure of standing up under an interference proceeding.

The patent is presumed to be valid, and the burden of establishing its invalidity is upon the defendant; 35 U.S.C.A. Section 282. It has been held that the new 1952 Patent Act reinvigorated this statutory presumption of validity. Georgia Pacific Corp. v. U.S. Plywood Corp., C.A. 2, 258 F.2d 124, 132, 118 USPQ 122, 129 (1958), cert. den. 358 U.S. 884, 3 L.Ed.2d 112, 119 USPQ 501 (1958). There is no question that a patentee is entitled to the benefit of the statutory presump-

tions, and this rule has been responsible for sustaining many patents, e.g., Willis v. Town, C.A. 8, 182 F.2d 892, 86 USPQ 138 (1950).

This presumption of validity is entitled to especially great weight where, as in this case, the prior art relied upon by the claimed infringer was carefully considered by the Patent Office. Anderson Co. v. Sears, Roebuck & Co., C.A. 7, 265 F.2d 755, 121 USPQ 161 (1959); University of Illinois Foundation v. Block Drug Co., C.A. 7, 241 F.2d 6, 112 USPQ 204 (1957), cert. den. 354 U.S. 922, 1 L.Ed.2d 1437, 113 USPQ 549 (1957); Cold Metal Process Co. v. Republic Steel Corp., C.A. 6, 233 F.2d 828, 109 USPQ 185 (1956), cert. den. 352 U.S. 891, 1 L.Ed.2d 86, 111 USPQ 467 (1956); Babson Bros. Co. v. Perfection Mfg. Corp. D. Minn., 86 F.Supp. 754, 83 USPQ 103 (1949).

It has been held that every reasonable doubt should be resolved against the person attacking the validity of a patent. Mumm v. Decker & Sons, 301 U.S. 168, 171, 81 L.Ed. 983, 985, 987, 33 USPQ 247, 249. The Eighth Circuit Court of Appeals and other appeals courts have reaffirmed this rule. Ezee Stone Cutter Mfg. Co. v. Southwest Indus. Prod., C.A. 8, 262 F.2d 183, 120 USPQ 23 (1958); National Latex Products Co. v. Sun Rubber Co., C.A. 6, 274 F.2d 224, 123 USPQ 279 (1959), cert. den., 362 U.S. 989, 4 L.Ed.2d 1022, 125 USPQ 668; Cameron Iron Works v. Stekoll, C.A. 5, 242 F.2d 17, 112 USPQ 411 (1957).

One Juettner, a Minneapolis patent lawyer and former examiner in the Patent Office, testified that only about 1 per cent of the patents issued by the Patent Office are subjected to an adversary proceeding with regard to validity. It appears that in the interference proceeding here, most, if not all, of the pertinent prior art was advanced and was fully considered by the Patent Office, making, it follows, an especially strong case for the application of the presumption of validity.

The law provides that whoever invents any new and useful composition of matter, or any new and useful improvement thereof, may obtain a patent, 35 U.S.C.A. Section 101, subject to certain restrictions and limitations set out in 35 U.S.C.A. Sections 102 and 103. Section 103 provides:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

In essence this section requires that the invention may not be patented if the subject matter would have been obvious at the time of the invention to a person having ordinary skill in the art. Although the defendant cites several references which it claims evidence the fact that the subject matter of Spiegel's invention would have been obvious to those skilled in the art in 1951, the Patent Office considered them adverse to the defendant's contention, and an examination of them by the Court does not impress that Spiegel's composition was obvious to those skilled in the art at the time of the claimed invention in 1951.

In essence, Spiegel's invention was of the compatibility of Freon, alcohol and PVP, and of the application of PVP to the hair from a substantially water-free alcohol solution. The compatibility of these substances and their application from a water-free alcohol solution was a new combination and use of substances which, although individually known and appreciated, had never before been combined for use in this fashion. The claimed references do not show otherwise.

The facts here show that Spiegel's composition was not obvious to those skilled in the art. Barr's chemists did extensive research in the field of aerosol hair spray for several years but failed to discover the Spiegel composition. Even after having some of the composition in hand, neither Barr's chemists nor those of the Catalin Corporation of America and the American Cyanamid Company could discover that resin LM was PVP. Martinelli, a research worker for GAF, did research work for many months and did not come up with Spiegel's solution. It is logical to conclude, therefore, that it was not obvious to those skilled in the art that one could take PVP, always thought of before as exclusively a pharmaceutical chemical, and merge it with alcohol and

Freon in an aerosol container and spray it on the hair from a water-free solution.

In the case of chemical combinations, a different standard of inventiveness is required than in the case of mechanical inventions. Chief Judge Yankwich of the Southern District of California noted this difference in the case of Everlube Corporation of America v. Electrofilm, Inc., S.D. Calif., 154 F. Supp. 788, 791, 115 USPQ 260, 263 (1957), affirmed C.A. 9, 265 F.2d 495, 121 USPQ 167 (1959), when he said:

> "The Supreme Court recognizes that while in mechanics the uniting of old elements may not satisfy the concept of invention, because the elements may continue, in combination, to perform the same function as before, with no different result, this is not true in chemistry. This for the reason that a chemical element, in a different combination, may achieve a new quality or function.
>
> "This fact, the verity of which is obvious, is of great significance in a case of this character in which it is insisted that all the elements used to achieve the result are well known in chemistry, and that all the patentee did was to urge their use in the particular combination."

It is well established that a chemical combination of known substances is patentable. Technical Tape Corp. v. Minnesota Mining & Mfg. Co., C.A. 2, 247 F.2d 343, 114 USPQ 422 (1957), cert. den. 355 U.S. 952, 2 L.Ed.2d 529, 116 USPQ 602 (1958); Colgate-Palmolive Co. v. Carter Products, Inc., C.A. 4, 230 F.2d 855, 108 USPQ 383 (1956), cert. den. 352 U.S. 843, 1 L.Ed.2d 59, 111 USPQ 467 (1956).

There is corroborative evidence of the inventiveness of Spiegel's formula. Aerosol PVP hair sprays have met with marked commercial success. This has long been held to be evidence of invention: Goodyear Tire & Rubber Co. v. Ray-O-Vac Co., 321 U.S. 275, 279, 88 L.Ed. 721, 724, 60 USPQ 386, 388 (1944); Ezee Stone Cutter Mfg. Co. v. Southwest Indust. Prod., C.A. 8, 262 F.2d 183, 187, 120 USPQ 23, 27 (1958); Long v. Arkansas Foundry Co., C.A. 8, 247 F.2d 366, 369, 114 USPQ 390, 393 (1957); Technical Tape Corp. v. Minnesota Mining & Mfg. Co., C.A. 2, 247 F.2d 343, 347, 348, 114 USPQ 422, 425 (1957), cert. den. 355 U.S. 952, 2 L.Ed.2d 529, 116 USPQ 602 (1958); Colgate-Palmolive Co. v. Carter Prod-

ucts, C.A. 4, 230 F.2d 855, 862, 108 USPQ 383, 388 (1956), cert. den. 352 U.S. 843, 1 L.Ed.2d 59, 111 USPQ 467 (1956).

Moreover, Spiegel's invention has been imitated by most of the cosmetic industry, and such imitation is recognized as persuasive corroborative evidence of invention. Diamond Rubber Co. v. Consolidated Rubber Tire Co., 220 U.S. 428, 441, 55 L.Ed. 527, 534 (1911); G.H. Packwood Mfg. Co. v. St. Louis Janitor Supply Co., C.A. 8, 115 F.2d 958, 965, 48 USPQ 4, 11 (1940); Colgate-Palmolive Co. v. Carter Products, C.A. 4, 230 F.2d 855, 862, 108 USPQ 383, 388 (1956), cert. den. 352 U.S. 843, 1 L.Ed.2d 59, 111 USPQ 467 (1956); Filtex Corp. v. Amen Atiyeh, C.A. 9, 216 F.2d 443, 445, 103 USPQ 197, 199 (1954); Ric-Wil v. E. B. Kaiser Co., C.A. 7, 179 F.2d 401, 84 USPQ 121 (1950), cert. den. 339 U.S. 958, 94 L.Ed. 1369, 85 USPQ 526 (1950); Trico Products Corp. v. Apco-Mossberg Corp., C.A. 1, 45 F.2d 594, 598, 7 USPQ 263, 266 (1930); Kurtz v. Belle Hat Lining Co., C.A. 2, 280 F. 277, 278 (1922).

The validity of the patent is strongly supported by Dr. Mark, who concluded that Spiegel's invention was novel and that its novelty consisted principally in the compatibility of Freon, alcohol and PVP. He said this had not been known before, and that it would not have been obvious to a person skilled in the art at the time the invention was made.

Finally, the defendants urge the patent is invalid because the claims do not comply with 35 U.S.C.A., Sec. 112, which provides in part as follows:

> "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

If the term "polyvinylpyrrolidone" is given a more generic meaning, so as literally to include PVP/VA E-735, as plaintiff's experts testified, then defendants allege that the claims do not particularly point out and distinctly claim the subject matter of the invention. Defendants rely on the rule "* * * that the inventor, when he comes to write his patent, cannot describe his invention in general terms which would include many other chemical substances, some of which would carry out the rule of the patent, but many of which could not be thus employed; that is, the inventor cannot disclose a

small number of compounds which will serve as a springboard for claiming an entire class." Hercules Powder Co. v. Rohm & Haas Co., 66 F.Supp. 899, 902, 70 USPQ 297, 300 (D. Del. 1946).

In particular, defendants rely on Matheson v. Campbell, 69 F. 597, 602-603 (S.D. N.Y. 1895), rev'd. 78 F. 910 (2nd Cir. 1897), wherein the Court said:

> "I do not understand the law to be so that an inventor can thus speculate on the equivalents of his claimed invention, and thereby oblige the public to resort to experiments in order to determine the scope of the claims of his patent. It is admitted that the general formula covers over 100 different bodies. The patentees declare that they are equivalents * * *. In fact, very many of these bodies are not equivalents and will not produce a black color. Whether this statement is true or false, as applied to a particular color, can be ascertained only by experiment * * *. If the experiment succeeds, the patentees claim the body as an equivalent. If it fails, they disclaim it. The law requires that the description in a patent for a chemical discovery should be especially clear and distinct."

See also Corona Cord Tire Company v. Dovan Chemical Corp., 276 U.S. 358, 385, 72 L.Ed. 610, 620 (1928); Armour and Company v. Wilson and Co., 168 F.Supp. 353, 362, 119 USPQ 365, 373 (N.D. Ill. E.D. 1958), modified 274 F.2d 143, 124 USPQ 115 (7th Cir. 1960); General Electric Co. v. Wabash Appliance Corp., 304 U.S. 364, 82 L.Ed. 1402, 1407, 37 USPQ 466, 470 (1938); White v. Dunbar, 119 U.S. 47, 30 L.Ed. 303 (1886). The Supreme Court said in Corona Cord Tire Co.:

> "Weiss (the patentee) could certainly not claim the entire group of such compounds (disubstituted guanidines). He makes no showing that there is any general quality common to disubstituted guanidines which made them all effective as accelerators. Claims for their exclusive use cannot therefore be sustained."

The rule of these decisions is well established: the question is whether it is applicable in this case. Plaintiff has not asserted that the term polyvinylpyrrolidone extends to every copolymer of vinyl pyrrolidone. It is the position of plain-

tiff's experts, particularly Dr. Mark, that the term polyvinylpyrrolidone, in the context of the Spiegel patent, should include homopolymers and those copolymers of vinyl pyrrolidone with other monomers that retain all of the essential attributes which are specifically set forth by the patent and which are contributed by the vinyl pyrrolidone substituent. Some of the possible comonomers, according to Dr. Mark, would bring about a well-known phenomenon, to wit, cross-linking, even with only a small amount of the added monomer. This, however, is a predictable phenomenon, since it depends upon certain known features of the added monomer, and Dr. Mark would not include the cross-linked copolymers even in his most generic definition of polyvinylpyrrlidone in view of the specific properties required by the teaching of the patent.

All other possible comonomers with vinyl pyrrolidone, it appears, would produce copolymers having essentially the characteristics contributed by the vinyl pyrrolidone monomer, and would be substantially interchangeable for the homopolymer for the purpose of the patent, provided only that the proportion of the added monomer, which contributes only a non-essential property, in so far as the patent is concerned, in each case is not too great.

It is this spectrum of copolymers which Dr. Mark would include in his generic definition of polyvinylpyrrolidone, namely, those copolymers which have not yet been so greatly diluted or modified that they lose any of the essential features of polyvinylpyrrolidone required by the patent. On the other hand, Dr. Mark, like the Court in Crozier-Straub, supra, would not include within the term polyvinylpyrrolidone those copolymers which are so greatly modified that one or more of the essential polyvinylpyrrolidone attributes described in the patent is lost.

It is uncontradicted on the record that, with the exception of the monomers which introduce cross-linking, every copolymer of vinyl pyrrolidone with some other monomer would retain the polyvinylpyrrolidone characteristics for the purposes of the patent at certain proportions of the added monomer, but would lose one or more of these characteristics at higher proportions of the added monomer. In each case, the polymer chemist is in a position to make a prediction as to where

the boundary area will occur. If the literature is extensive, or if experiments are conducted, the boundary area for a particular copolymer might be narrowed somewhat, but it is inherent in polymer chemistry and in the type of copolymers under discussion; that the transition in properties is gradual as the proportions of the respective monomers are changed. Thus, if we start with black coffee, and add cream, there is necessarily a general boundary area where it is hard to tell whether we have cream-flavored coffee, or coffee-flavored cream.

Under the established laws of polymer chemistry, the same sort of a gray boundary area occurs with respect to the particular polyvinylpyrrolidone properties which are pertinent for the Spiegel invention. Since the various monomers differ in the non-essential properties they contribute, the location of the boundary area must depend upon the particular monomer involved. Dr. Mark adds that most of the discussion of the possible comonomers is on the academic level since most of the other monomers are laboratory items, if they exist at all. He says that as a practical matter, the most readily available comonomer, having in mind the requirements of the patent, is the vinyl acetate, the one in the accused product.

The basic fallacy in the defendants' position under Section 112, therefore, is that they take the definition accorded to the term polyvinylpyrrolidone by Dr. Mark and Dr. Meehan in the light of the known realities of polymer chemistry, so as to include not only homopolymers, but also essentially equivalent copolymers, and then erroneously attempt to treat this definition as if it included copolymers which are not essentially equivalent. The present case is thus in marked contrast with the Corona Cord Tire Company case, supra, because there is here a distinct showing of general qualities common to the homopolymer and those copolymers which plaintiff asserts are included within the generic term polyvinylpyrrolidone, namely, the qualities imparted by the vinyl pyrrolidone monomer.

Under these circumstances, we do not have a case like the decisions cited by defendants where a generic term is employed which embraces both operative and inoperative substances. Every copolymer which is here included is operative; indeed, some copolymers which are here excluded might

also be operative as hair sprays in an appropriate system, since the patent makes requirements as to solubility and compatibility which are necessary for Spiegel's type of hair spray, but do not appear to be essential for a non-Spiegel type of hair spray. The question, therefore, is only whether the patent adequately describes the boundary areas, in the light of the gradual changes which are known to occur.

The rule is well established that where the nature of a particular art or science is such that the claims of a patent cannot be absolutely precise, the law requires only that degree of precision which is reasonable under the circumstances. Minerals Separation v. Hyde, 242 U.S. 261, 270-271, 61 L.Ed. 286, 293 (1916); S. D. Warren Co. v. Nashua Gummed and Coated Paper Co., 205 F.2d 602, 605-606, 98 USPQ 41, 43 (1st Cir. 1953). As the Court of Appeals for the First Circuit recognized in Warren:

> "Particularity of identification and clarity of statement are relative terms when applied to an invention. Some inventions are capable of description in terms of meticulous accuracy; others are not."

The Court then pointed out that the invention under consideration was in the latter class, because there were a number of different *polymeric* materials which could meet the requirements set forth by the claims. Taking a realistic view of the problem presented to an inventor in describing such an invention in his claims, the Court ruled that, where the specification sufficiently indicates the characteristics of the materials which are to be included, then one skilled in the art could readily apprehend the nature of the invention, and "this is all the law requires."

Similarly, in Minerals Separation v. Hyde, Mr. Justice Clark, for the United States Supreme Court, declared:

> "Equally untenable is the claim that the patent is invalid for the reason that the evidence shows that when different ores are treated preliminary tests must be made to determine the amount of oil and the extent of agitation necessary in order to obtain the best results. Such variation of treatment must be within the scope of the claims, and the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject matter. The composition of ores varies

> infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case. The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law."

See also A. S. Boyle Co. v. Siegel Hardware & Paint Co., 26 F.Supp. 217, 223, 40 USPQ 94, 99 (D. Mass. 1938), where the Court said:

> "The further contention that the claims are invalid because they specify nitrocellulose and there are some kinds of nitrocellulose which cannot be used successfully in the Griffiths composition and hence the claims were too broad and invalid, cannot be sustained. The claims specify nitrocellulose. The patentee stated in his deposition that there were certain types of nitrocelluloses, highly nitrated and explosive, wholly unsuited for use in his composition and that nitrocellulose soluble in ether alcohol is suitable for use. However, in the specification celluloid scrap is the form mentioned to be used and the specification later says that in place of celluloid scrap other forms of nitrocellulose may be used, such as celluloid in the form of sheet or the like. This is the plain guide as to the type of nitrocellulose that is to be used in the composition, namely, that used in the manufacture of celluloid. This variety, it is suggested in the specification, contains the proper degree of nitration. It does not seem that one skilled in the art would have much difficulty about this. He would select a nitrocellulose having the proper degree of nitration. Claims must be read in the light of the disclosure of the specification, not to restrict the invention to the precise structure disclosed, but to grasp the invention in order properly to measure the range of equivalents."

Particularly helpful on the issue of claimed indefiniteness is the decision of the Court of Appeals for the Second Circuit in Georgia-Pacific Corp. v. United States Plywood Corp.,

258 F.2d 124, 118 USPQ 122 (1958), cert. den. 358 U.S. 884, 3 L.Ed.2d 112, 119 USPQ 501. In that case, Claim J, which was the only one properly limited to describe the invention in view of the prior art, was held invalid because of the lack of objective measurements both in the specification and the claims, and the inability of expert witnesses precisely to delimit the scope of the claims. The Court of Appeals reversed, holding Claim I valid, and saying at 258 F.2d 136, 118 USPQ at 132:

> "We think that the District Court was too rigorous in applying the requirement of precision. This requirement serves two primary purposes: those skilled in the art must be able to understand and apply the teachings of the invention (and enterprise and experimentation must not be discouraged by the creation of an area of uncertainty as to the scope of the invention. On the other hand, the policy of the patent statue contemplates granting protection to valid inventions, and this policy would be defeated if protection were to be accorded only to those patents which were capable of precise definition. The judicial function requires a balancing of these competing considerations in the individual case."

After recognizing that the patentee is required to draft his claims as precisely as the subject matter permits, the Court continued at page 136, 118 USPQ at 132:

> "On the other hand, patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and the applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision. If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more . . . . That an area of uncertainty necessarily exists in such a situation cannot be denied, but the existence of an inescapable area of uncertainty is not sufficient justification for denying to the patentee the fruits of his invention."

The Court then continued to consider the uncertainty problem in the light of the doctrine of equivalents, and the fol-

lowing language appears at pages 136-137, 18 USPQ at 132:

> "Indeed, in the administration of the patent statutes uncertainty has been introduced by express judicial creation. It has often been stated that the scope of the patent is limited by the language of the claims. Where, however, an infringer has attempted to appropriate the essence of the invention while remaining outside the language of the claims, courts have not hesitated to apply the doctrine of equivalents, whereby the 'essence' of the invention is protected * * *. In such situations, the patentee is protected even though he has been more precise than the subject matter of the invention permits or requires. It would be anomalous if this Court were to strike down a patent because the inevitable area of uncertainty was created by the language of the specifications and claims rather than by judicial application of equivalency doctrine."

So, in this case, faced with the fact that the defendant has appropriated the essence of the Spiegel invention, the Court will not strike down a patent on a meritorious invention, regardless of whether infringement is found by interpretation of the claims or under the doctrine of equivalents.

Here, the specification and claims demark the boundary areas so as to inform someone skilled in the art of the nature of the invention. Dr. Mark testified that he could not provide any words or figures which could any better define the boundaries with respect to molecular composition. This testimony is authoritative and uncontradicted, and the Court is satisfied that the claims are sufficiently definite. To rule otherwise would amount to a holding that in patents involving the use of a polymer, the inventor must either restrict himself so narrowly as to invite imitation or else find his patent invalidated on grounds of indefiniteness.

Furthermore, the claimed indefiniteness is all hypothetical in nature; the only copolymers of vinyl pyrrolidone which are commercially available are those with vinyl acetate. Although there is undoubtedly and inherently some gray area with respect to copolymers of vinyl pyrrolidone and vinyl acetate, PVP/VA E-735 is not in the gray area. This product falls clearly within the claims. Since this is the accused product with which the defendants are infringing, they may

not, with propriety, raise objections based upon hypothetical uncertainties. In the language of the Court of Appeals for the Ninth Circuit:

> "If it is indefinite in some respects due to the comprehensive character of the invention and of the claims therefor, it is not uncertain in the area of description involved in this action. Any vagueness in these outlying boundaries of the description does not invalidate the patent as to that which is clearly defined."

Research Products Co., Ltd. v. Tretolite Co., 106 F 2d 530, 534, 43 USPQ 99, 102 (9th Cir. 1939).

The Court finds that the patent is not invalid for failure to comply with 35 U.S.C.A. Section 112.

The Court therefore concludes that the discovery was of a new and useful composition of matter; that it was novel; that it was previously unknown and was not anticipated by others; that the invention would not have been obvious to a person having ordinary skill in the art at the time of the claimed invention; that the patent issued is valid; and that the patent has been infringed.

The Court concludes that the plaintiff has not discharged its burden of proving a cause of action for misappropriation of a trade secret.

The foregoing may stand as the Court's findings and conclusions of law. Plaintiff's counsel will please prepare an appropriate decree.

APPENDIX E

Patent Office Decision in Interference Proceeding on Question of Patentability Over Prior Art

(EXCERPTS FROM PLAINTIFF'S EXHIBIT 61)

Paper No. 34

U. S. DEPARTMENT OF COMMERCE
United States Patent Office
Washington

Please find below a communication from the *EXAMINER in this case.*

ROBERT C. WATSON
Commissioner of Patents

Interference No. 88,469
Martinelli v. Spiegel

Mailed May 2 1958 Pat Div 43

Decision on Motions

The Motions

I. The party Martinelli moves to dissolve the interference on the ground that the count is unpatentable to both parties over prior art newly cited by the party Martinelli. Paper No. 13, filed Oct. 2, 1957.

II. The party Martinelli moves to strike portions of the party Spiegel's brief in response to the above-mentioned motion of Martinelli to dissolve. Paper No. 27, filed Nov. 29, 1957.

The Common Invention at Issue

The invention is a hair-spray composition for the wave-setting of hair (to be distinguished from the permanent wav-

ing of hair). A gum-like or other hair-staying material is applied to hair in such wave-setting use to serve to hold the hair in a desired configuration for as long as contact between such material and the hair is maintained.

The count in issue is:

> A sprayable hair-preparation comprising a substantially water-free alcoholic solution of polyvinylpyrrolidone and Freon.

References relied upon in Motion to Dissolve

A correct copy of the references relied upon by party Martinelli in his Motion to dissolve the interference is found on pages 1 and 2 of paper No. 13.

Action on the Motions

II. The motion labeled II, above, will be treated first as being less involved and more directly disposable.

The party Martinelli has moved, in such motion, to strike, from the brief of party Spiegel, allegations of derivation of the invention by the party Martinelli from confidential disclosure of same by the party Spiegel to the party Martinelli.

Since determination of the factual issue thus raised by these allegations of Spiegel would require a determination of priority and origination of the invention, with taking of testimony and including the right to cross-examination, the allegations are not proper for consideration at this stage of the interference, and the here-considered motion of the party Martinelli is believed to be well-taken.

Cory et al. v. Blakey, 1905 C.D. 116 is considered to be the controlling decision. The instant situation differs therefrom in that the party Spiegel is not the movant to dissolve the interference "based upon the allegation that the other party is not an original inventor, but derived his knowledge of it from the other party", but the party Spiegel makes such allegation by way of argument, supplemented by a submission of a showing by affidavit, in an effort to support an argument as to the non-obviousness of the invention of the count, via the mechanism that it became obvious to the party Martinelli only after the party Spiegel had disclosed the invention to the party Martinelli.

Since the question raised by the allegations is related to

priority and would require the taking of proofs to resolve, not being determinable from a consideration of the applications and Office records alone, the allegations are believed to be subject to the motion to strike. "The question of originality of invention when considered at all in an interference is passed upon in the final decision as to priority of invention and not upon interlocutory motion." Cory et al. v. Blakey, at page 117.

Accordingly, the motion to strike, made by the party Martinelli, is granted. The supplemental affidavit of Spiegel, and attached letter, (Paper No. 26) are within the scope of the motion to strike.

I. Motion by Martinelli to dissolve on the ground of unpatentability.

The party Martinelli has moved to dissolve the interference on the basis of the 21 references cited at pages 1 and 2 of his motion (Paper No. 13). These references, and the arguments of the parties for and against the application of the references, have been considered, but it is not seen that they spell out lack of invention in the count at issue. The motion, accordingly, is not seen to be well taken.

Generally, it is not seen that the cited references are other than of the nature of those cited of record in the Spiegel file, or admitted as prior art in the Spiegel application, and over which a determination of the presence of invention had been made, and the interference subsequently declared. The references will be discussed in the particularity deemed proper and reasonable, bearing in mind the large number of references involved.

The Benk reference is most strongly relied upon by movant, who asserts that Benk constitutes a complete anticipation of the count. If this were so, then, since the party Martinelli has conceded at the oral hearing on motions that the date of publication of Benk is December 1, 1951, said Benk reference would clearly be a statutory bar under 35 U.S.C. 102 (b) against the party Martinelli, although not necessarily against the party Spiegel (Rule 131).

However, it is not seen that Benk constitutes in any way an anticipation of the count. Since the reference does not show the composition recited in the count, even disregarding

the stated utility of the count, it cannot serve as an anticipation.

Nor is it seen that Benk may be properly combined with any of the other references to attempt to spell out a lack of invention in the count. The party Martinelli has attempted to combine, with Benk, each of the references Harry, Goodhue et al. 2,321,023 and "P.B. Report 25, 615."

Benk is drawn to liquid plasters, and contains no suggestion of applicability to the hair, nor of spray application, paint-on application to the skin or to bandages being specifically disclosed. The latter type of application is foreign to and inoperative for the subject invention. Neither polyvinylpyrrolidone, nor anything else, is shown in combination with Freon, in Benk, since Freon is not disclosed in Benk. Martinelli argues that since Benk discloses methylene chloride as a solvent for PVP, and methylene chloride is a known propellent (citing Goodhue et al publication) and hence equivalent to Freon, it would be obvious to substitute Freon for the methylene chloride of Benk in the Benk composition. Several things are wrong with this combination of references.

Firstly, neither of these references suggests the spray application to the hair of a liquid plaster; secondly, Benk does not isolate methylene chloride as a solvent for PVP, but his disclosure is omnibus in type, wherein he teaches (p. 611, right column, paragraph beginning at fifth line) that as the gum material of the liquid plaster may be used

> "Nitrozellulose (Kollodiumwolle), Azetylzellulose (Cellit), Harze, z.B. Kolophonium, Fichtenharz, Terpentin, ferner Kautschuk und Gummiharze, wie Guttapercha, Balata, Mastix sowie auch Kunstharze (Polyvinylätet, Polyacrylsäure, Polyacrylund Polymetacrylsäureester, Polyvinylpyrrolidon)."

And, as solvent materials come into consideration

> "Äther, Azeton, Methyl—und Athylazetat, Athyl, und Isopropylalkohol, Chloroform, Methylenechlorid, Benzin und Benzol."

It becomes clear that the reference cannot be interpreted as teaching that each of these solvents is suitable for use with each of the gum-like materials since PVP, for example, is insoluble in at least, among these disclosed solvents, ether, acetone, ethyl acetate, benzine and benzene (Plasdone, Poly-

vinylpyrrolidone, New Product Bulletin No. P-100, G.A.F., of record in Paper No. 9 in the Spiegel application, pp. 11 and 12 of the reference). Therefore, it is clear that Benk in nowise teaches the use of methylene chloride as a solvent specifically for PVP. The only solvent for PVP specifically taught in Benk is at page 612, col. 1, second complete paragraph, disclosing PVP in 15 to 20% soltuion in ethyl- or isopropyl alcohol, as a pasting medium for a bandage, and at page 612, col. 2, last paragraph of the article, disclosing as solvents for PVP, for the formation of collodions, a mixture of chloroform with alcohol, and also the same with some content of methylenechloride. No concept is here present of these solvents as propellent means, analogous to Freon, but they are disclosed in Benk solely as solvents. The Benk reference is not seen to be any more pertinent to the count of the interference than were the corresponding references of record in the Spiegel file disclosing solvents for PVP.

Additionally, methylene chloride is not analogous to Freon because PVP is insoluble in Freon, whereas it is soluble in methylene chloride. One skilled in the art, having Benk before him, and, conceding for argument's sake, being taught that methylene chloride is a solvent for PVP, would not be led to substitute Freon for the solvent methylene chloride because Freon is not a solvent for PVP. Thus, we have a situation where the suggested combination of references requires more than the ordinary skill of one in the art.

Party Martinelli asserts in his Motion to dissolve that the count is unpatentable over Benk when taken with Harry, the Goodhue et al. patent (in view of the McGovran et al. patent) and PB 25,615. This combination of references has been considered but is not seen to negate patentability of the count for the following reasons. The Harry literature reference stating that alcoholic solutions of resins were used for spraying on the hair contains no teaching of applicability of Freons for dispensing the resinous material and generally adds nothing to the record over the Janistyn or Luckenbach references applied in the Spiegel application and over which patentability was deemed present. Likewise, P.B. 25,615 disclosing an aqueous PVP hair fixative merely substantiates the similar teaching of Janistyn. The Goodhue et al. patent relates to the desired solubility of the active agent in the propellent and the McGovran patent teaches the use of a

mutual solvent for the active product and the Freon. These references add nothing material over the admitted prior art in the Spiegel specification and thus present no disclosure that was not considered during the prosecution of the Spiegel application. The argument that Goodhue et al. teach that the Freons are chemically related to carbon tetrachloride and chloroform is not convincing of their equivalency, particularly when considered with the disclosure of "Plasdone" that PVP is insoluble in carbontetrachloride and soluble in chloroform. Movant appears to rely on the sentence (in Goodhue) "Those compounds soluble in carbon tetrachloride or chloroform are in general soluble in dichlorodifluoromethane." From such a statement and the disclosure pointed out in "Plasdone" it cannot be assumed that there is any equivalency between Freon and carbontetrachloride with respect to their solvent powers for PVP. Thus where Benk does not teach the solubility of PVP in methylene chloride alone, nor as a propelling material nor the application of a sprayable alcoholic PVP solution on human hair and none of the secondary references relied upon demonstrates that PVP specifically may be solubilized in a propelling "Freon" medium by a mutual solvent as ethyl alcohol, the count is deemed to constitute proper patentable subject matter over this combination of references. Movant argues that Spiegel discloses dichlorodifluoromethane or related compounds and mixtures thereof as propellent. It is pointed out however that these operative propellent materials are further restricted by the phrase "commonly known as Freon" and hence the Spiegel disclosure is not deemed to embrace chloroform and methylene chloride as intended operative propellants.

The count is patentable over the three Rotheim patents even when considered with Benk, the Goodhue publication and P.B. 25,615. The Rotheim patents disclose aerosol cosmetic preparations of essentially water insoluble resins. As polyvinylpyrrolidone is highly soluble in water, the selection of said resin for that of anyone of the Rotheim patents cannot be said to be obvious. Furthermore, Benk does not show that methylene chloride itself is a solvent for PVP as relied upon by movant nor does P.B. 25,615 teach a sprayable PVP-chlorinated hydrocarbon solution. Hence, for these reasons this combination of references is not seen to be proper nor

persuasive of lack of invention in the Freon propelled alcoholic PVP hair lacquer of the count.

Movant also argues that the count is unpatentable over each one of Anon, Moore, Young and Stribbling alone, or when taken with Modern Plastics or the P.B. publication. Anon merely teaches that a Freon propelled hair dressing preparation is old. This same teaching (by Lesser) was considered during the prosecution of the Spiegel application and patentability thereover was seen in the count. The Moore, Young and Stribbling references discuss the trend toward cosmetics in the various applications of the aerosol propellent. None of these references mentions PVP as the hair dressing material, and Modern Plastics discloses its solubility in *chlorinated hydrocarbons*, not Freons specifically. As discussed above, there are two reasons why PVP would not be assumed to be soluble in a Freon propellant merely from the Modern Plastics disclosure: (1) "Plasdone" teaches that PVP is insoluble in carbon tetrachloride, a common chlorinated hydrocarbon and (2) the count reads a "Freon" (chlorinated and *fluorinated* hydrocarbon). In summary, Modern Plastics cannot be said to teach that Freons are suitable solvents for alcoholic PVP solutions and thus patentability is considered present in the count.

The remaining of the total of twenty-one references made of record by party Martinelli in his Motion to Dissolve have been likewise as carefully considered as the above discussed references but similarly are not convincing of non-patentability in the count. Many of these references discussed by party Martinelli on pages 16 to 21 of his Brief in Support of Motion to Dissolve merely relate the development of the aerosol industry from its initial insecticidal uses to such widely separated fields of application as for hair waving and for whipped cream. The Lesser reference of record in the Spiegel application essentially touched on many of the same points as Power Packers, Goldberg, C and E News "Aerosol Dominates . . . Manufacturers", Kinetic advertisement, "Sanitary Products" and Dietz et al. Furthermore, these references discuss aerosol uses speculatively and do not present any specific formulations as in the count. Hence, they are no more than invitations to experiment in the aerosol application field and obviously do not meet the composition set forth in the count. To consider these references with P.B. report,

Modern Plastics and the Goodhue patent does not render the count unpatentable as there is no teaching in these references that a Freon propellent provides a suitable soltent for the PVP hair lacquer of P.B. report. The Modern Plastics' disclosure that PVP is soluble in *chlorinated* hydrocarbons (not hydrocarbons which are *both chlorinated* and *fluorinated* and are known in the art as Freons) is not anticipatory of the count since it does not suggest the use of *chloro-fluorinated* hydrocarbons and in any event, since PVP is *not* soluble in the Freons of the count; and even on combining the references as applied by movant it would not be apparent that the Freon insecticidal propellants of Goodhue or McGovran would provide the desired composition when utilized to propel the PVP hair preparation of P.B. report. This proposed rejection, based as it is upon a combination of a multitude of references, differs only slightly from the rejection over "PVP" (which shows polyvinylpyrrolidone in aqueous aerosol form) and from other rejections of record applied and subsequently dropped during the prosecution of the Spiegel application, and over which rejections patentability was seen in the count.

Consideration has been given to the remarks made by movant on Spiegel's File History and showings therein but are not discussed herein as invention was deemed present in the count during the prosecution of the case over the references made of record in said case. Hence the count remains patentable over those references. Furthermore, Cory et al. v. Blakey, cited above, is authority for the proposition that the ex parte affidavits, or other showings, and arguments based thereupon submitted by the party Martinelli in an attempt to prove non-patentability of the count to the party Spiegel, cannot be considered in the present interlocutory motion to dissolve. Accordingly, none of such showings, for instance the showings of paper Nos. 18 and 32, submitted by the party Martinelli will be considered in determining disposal of the present motion.

Accordingly, the motion to dissolve the interference by party Martinelli on the ground that the count is unpatentable to both parties over the prior art newly cited by party Martinelli is denied.

Summary

I. The motion of the party Martinelli, to dissolve the interference, is denied.

II. The motion of the party Martinelli, to strike, is granted.

/s/ M. O. Wolk
Acting Examiner, Div. 43

/s/ R.C.M.
R. C. Manning:lwl